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STATE MANUAL

and

Course of Study

FOR THE

DISTRICT SCHOOLS

of

MICHIGAN

VI

Revised and authorized by DELOS FALL, State Superintendent of
Public Instruction.


Fifth Edition

1901

1901

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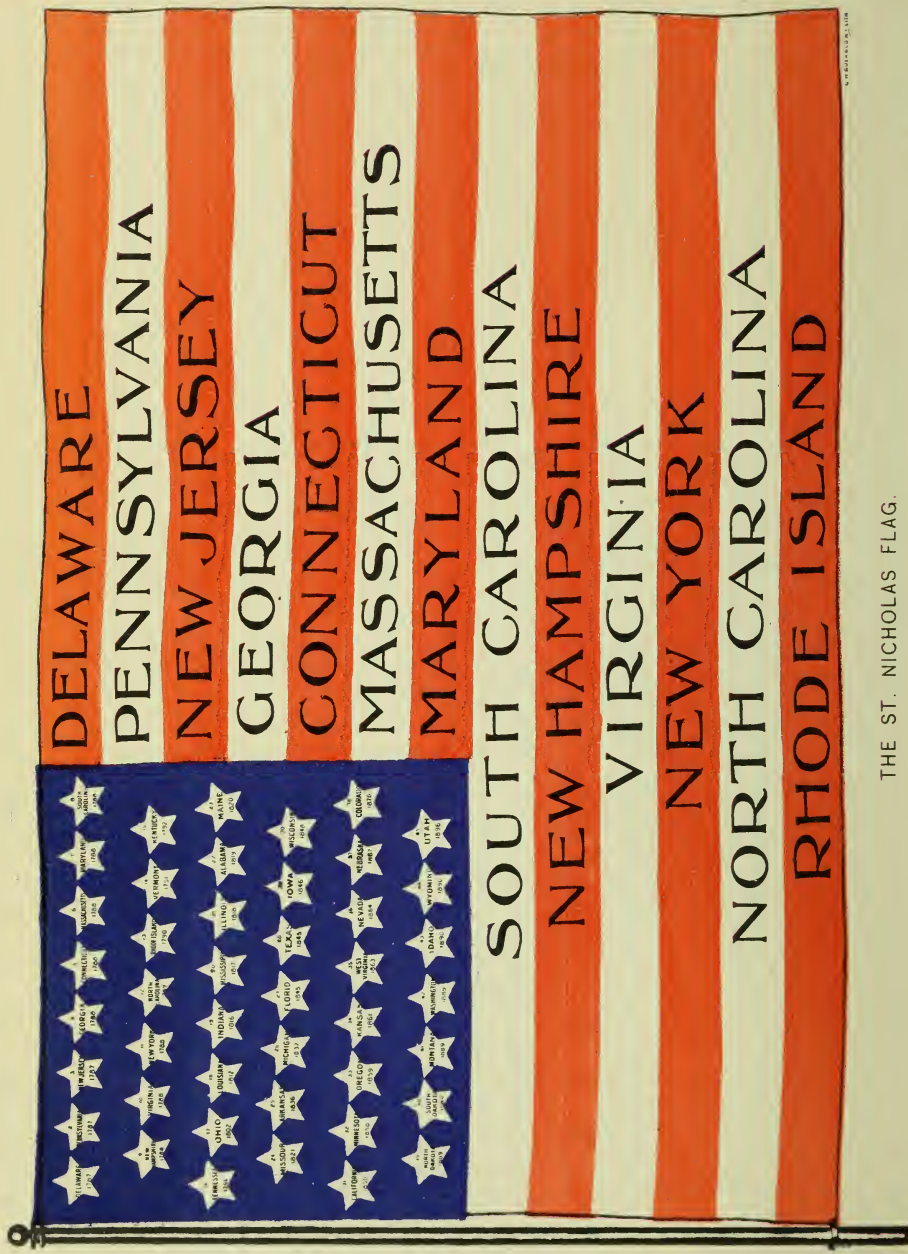


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THE ST. NICHOLAS FLAG.

THE STAR-SPANGLED BANNER.

It is not a painted rag; it is a whole national history.—Beecher.

The St. Nicholas flag will suggest many interesting exercises. If possible a large flag should be procured; at least, place the outlines of one upon the black-board, coloring while studying.

With primary pupils give a few leading facts connected with the history of the colony represented by the first stripe and, when they can state them, *color* the stripe with crayon; then take the second, continuing until pupils can give the facts of all the colonies represented by the stripes.

A flag might also be made upon heavy cardboard or pasteboard and the stripes cut out. Then have a flag-building exercise, letting pupil take a stripe, tell what he can concerning the colony, and place it in its proper order. Whatever method is used, study the work in connection with the large United States map.

Use also pictures, history stories, patriotic poems and songs. Many incidents, catch-words, and associative facts will help pupils to remember the order of the "star-states." For example, Vermont, the *first* "star-state;" Kentucky and Tennessee the "neighbor states."

Take next the six "see-saw" states, first a northern, then a southern. Explain the jealousy of the north and south, how they were like selfish children, each afraid the others would get the advantage. Associate with Maine, the "Pine Tree State," the thought of lumber for the many buildings necessary in the growing country; with Missouri, the slavery question and Missouri compromise; with Michigan, the "home state" idea; with California, the "Golden State," the discovery of gold and consequent excitement, contrasting with the Klondike of today; with Kansas, the central location, giving an idea of the vastness of our country.

Finally, let every lesson teach that for which the flag stands. Emphasize the growth, or rather the *growing together*, of the colonies and territories up to the present complete union. Then teach our "E pluribus unum" and its significance.

'Tis the star-spangled banner! Oh, long may it wave
O'er the land of the free and the home of the brave!

—Francis Scott Key.

(The St. Nicholas flag, 26½ by 17½ inches, can be procured for ten cents of the Century Publishing Co., New York.)

"RELIGION, MORALITY, AND KNOWLEDGE BEING NECESSARY TO GOOD GOVERNMENT AND THE HAPPINESS OF MANKIND, SCHOOLS AND THE MEANS OF EDUCATION SHALL FOREVER BE ENCOURAGED."—*Ordinance of 1787.*

PREFACE.

About twelve years ago the State Association of county secretaries (commissioners of schools) appointed a committee of five of its members to prepare a "State Manual and Course of Study" for the use of the rural schools of the State. The main purpose of the work was to provide a plan that could be followed in all the schools of the State, aiding teachers and school officers in becoming a part of a system and encouraging pupils to perform a definite amount of work before leaving the district school. The persons appointed on the committee were five of the most efficient of the secretaries of the State as follows: Orr Schurtz, Eaton county; C. L. Bemis, Ionia county; R. A. Culver, Calhoun county; Ashley Clapp, Kalamazoo county, and P. M. Brown, Mecosta county.

The State Manual and Course of Study prepared by this committee was so well received that three editions were exhausted in less than eight years, 5,844 schools being reported as using it in 1896.

In 1897 the *new* Manual and Course of Study was issued, an edition of 30,000 being printed. In the preface of that edition the following reasons for making the "*new*" Manual were given:

"First—The interest taken in rural schools by leading educators has developed advanced ideas concerning their scope and management.

Second—The average district school teacher has reached a point where he, too, stands upon the area of advanced ideas, and demands their incorporation into every educational line. While we should not be in too great haste to discard the old and embrace the new, the inspiration born of new ideas oftentimes compensates for the errors which they may contain, but which use may eliminate.

Third—We may be pardoned for acknowledging a desire to keep Michigan in the van of educational progress; and, believing firmly in the new education, we have made such changes as we think will be accepted and applied by the mass of our teachers.

Fourth—The legislature of 1897, desiring to bring the State Agricultural College into closer touch with the schools of the State, enacted a law providing for an

AGRICULTURAL COLLEGE COURSE

which law is quoted in full as follows:

The Superintendent of Public Instruction shall prepare for district schools a course of study, comprising the branches now required for third grade certificates, which shall be known and designated "The Agricultural College course," and upon the satisfactory completion of this course of study, as evidenced by a diploma or certificate duly signed by the county commissioner of schools, pupils shall be admitted to the freshmen class of the Agricultural College without further examination. It shall be the duty of the secretary of the Agricultural College each year to send to each rural school district in the State a college catalogue, and upon application to furnish to such schools such other information as may be desired relative to said college. Such catalogue and other information shall be kept in each school for reference."

We hold to these views, and in the issue of this second edition a few changes only have been thought advisable.

While this Manual is primarily designed for the purposes heretofore enumerated, it also, with the ninth and tenth grades of the village schools, as I believe, fully meets the requirements of this law providing for the admission of students to the College.

In conclusion I desire to give full credit for the preparation of this Manual to my very efficient chief clerk, Mr. A. Hamlin Smith. His many years of experience in various lines of school work, his ability and devotion to the cause of education, entitle him to this consideration.

That this Manual contains no errors is scarcely to be expected; but we offer it in the belief that the earnest, progressive teachers of our rural districts will be seekers after the helpful features rather than the opportunity to criticise.

With an abiding faith in our public schools and an earnest desire to promote their greatest good, I am,

Very sincerely yours,

DELOS FALL,

Superintendent of Public Instruction.

INTRODUCTION.

This Manual has been prepared with one great object in view—to enable the children of the district schools to follow from term to term and year to year a plain, simple, progressive line of study that shall give them in the end a good, common school education. Its constant aim throughout is:

First—To introduce nothing that should not be taught in the schools.

Second—To make the classification as simple as possible—easy for the teacher to understand and follow, and such as shall lighten his labors.

Third—To regulate the steps from grade to grade so that pupils shall be interested and kept in school, encouraged and credited for work done, and the usual waste of time and aimless work resulting from frequent change of teachers be reduced to a minimum.

Fourth—To put all the school work of the State on one common plan, so that methods used in teaching the various branches, amount of work accomplished, the system of reports, records, etc., may be the same.

Fifth—To make the work of supervision stronger and more effective, and to enlist the interest and sympathy of parents and school officers by making them better acquainted with what the schools are endeavoring to accomplish for their children.

METHODS.

The term *method* is a much abused word. The true teacher “sees the end from the beginning” and the pathway to it, then plans definite means to reach this end along the line of the least resistance. His every act has a purpose, clear and intelligent, directed toward this end. These acts, in the aggregate, constitute his *method*.

Disconnected devices, no matter how helpful, do not constitute a method. It is a systematic application of connected plans that succeeds, whether in school, business, or professional life.

While this Manual is not a book of methods, some effort has been made to give methods along a few lines. In general these are designed to be suggestive. The primary work in reading, numbers, language, and geography, however, is more than suggestive and well worth a trial.

In every successful school, closely allied to method in teaching is method in study. The greatest teachers are those who not only arouse the minds of their pupils and create a thirst for knowledge, but also teach them how to search, investigate, and know. Therefore the teacher should know *how* his pupils study, correct their faults, and suggest methods of concentrating the mind and intensifying mental concepts.

The steps in study are:

- (1) To select the central points.
- (2) To illuminate them with the imagination.
- (3) To associate them with past knowledge.

It is therefore recommended that just before the close of each term commissioners prepare sets of test questions covering the work that should have been done by each grade during the term, place them in a sealed envelope, put this inside a larger one and mail to each teacher, with directions not to open the envelope containing questions until the day of examination.

Upon the day of examination, let the pupils choose three of their number to open the sealed envelope and sign their names to the blank found with the questions, which states that they have not been opened or tampered with. When the examinations are completed the teacher will mark them, after which the papers of each grade are to be securely fastened together and all kept in the teacher's desk for the commissioner's inspection. All standings are also to be entered upon the classification record. This is the plan now in use in several states. *These papers, the classification record, and daily register* the commissioner will carefully inspect while visiting a school; and he should accept no excuses for failure to have them ready for him. Promotions might be made from these term examinations.

SOME PRINCIPLES OF PESTALOZZI.

1. Activity is the law of childhood; accustom the child to do, educate the hand.
2. Cultivate the faculties in their natural order; first form the mind, then furnish it.
3. Begin with sentences and never tell a child what he can discover for himself.
4. Reduce the subject to its elements; one difficulty at a time is enough for a child.
5. Proceed step by step; be thorough.
6. Develop the idea, then give the term.
7. Proceed from the known to the unknown.
8. Synthesis, then analysis; not the order of the subject, but the order of nature.

NOTE.—The third principle must be applied with discretion; a rigid enforcement would discourage many pupils.

Examination Papers:—

1. Place the name of the study as near as possible in the center of the sheet at top.
2. Write on the paper so that the red line is always at the left.
3. Do not write upon the margin at the left of the red line.
4. Number the answers at center of sheet with Roman numerals.
5. To fold papers, take hold of bottom of sheet, fold over half, then fold one-half again in the same way. Write name across one end of paper thus folded.

Government:—

Closely allied to good teaching is good school government. Indeed it is safe to say that the second is a necessary adjunct of the first. The teacher should feel that control lost, *all* is lost. While that mysterious property whereby one person silently controls another can be neither analyzed nor acquired by any principles of metaphysics, there are certain general rules whose use will strengthen one's personality, and the following are suggested:

1. Train the eye to steadiness.
2. Train the nerves to inflexibility.
3. Bridle the tongue.
4. Enlarge your sympathy and cultivate to the full the patience that grows in its soil.
5. Master the subjects you teach.
6. Keep pupils busy.
7. Interest yourself in the pastimes of your pupils, engaging in such as you can.
8. Be prepared for the rainy day with a fund of games, puzzles, and tricks.
9. Secure co-operation of parents.

A self-governed school should be the ideal of every teacher, and all effort to control should aim at securing a democratic type of government. Pupils can often be spurred to efforts of self-control by the organization of the school into a "Council" that, by majority vote, shall pass rules of conduct both on school grounds and during

sessions. Further restraint can be added by having a "Daily Chronicle," "Visitors Book," or school "Log-Book" in which every event of importance is faithfully entered for the inspection of visitors.

However, all devices will fail, unless back of them is a cool, calculating head; a watchful eye, and a steady hand. The moment pupils think any plan of work is a clap-trap for them, that moment it is useless. But *govern* the teacher *must*; and such pupils as will not or cannot (there are many such) exercise self-control, must be restrained. Yet there should be a marked distinction between occasional violations of rules, and studied, habitual disobedience, as also between simple infractions of regulations and vicious immoralities.

Finally, when everything else fails, incorrigible pupils should be suspended or expelled for the protection of the school.

SUGGESTIVE ORDER OF WORK IN NATURE STUDY.

In nature study the order of exercises should harmonize with the order of Nature.

September.

Plants:—

Compare growth of twigs on different trees—maple, horse chestnut, etc.

Relation of insects to leaves—used as nests, for food, for depositories for eggs.

Animals:—

Migration of birds.

October.

Plants:—

Buds for next year's growth; color of bark, growth of wood, hardness of bark and wood.

Leaves,—color, effect of frost.

Animals:—

Disappearance of birds, insects, and animals.

November.

Plants:—

Thickening bark, scales on buds, etc. Why?

Animals:—

Thicker covering of cat, dog, and sheep. Why?
(Use of wool and furs for clothing.)

December.

Plants:—

Effect of frost on plant life.

Animals:—

Means of protection from the cold; storing of food.

January and February.

During these months study the effect of sudden changes of weather on both animal and plant life.

March.

Plants:—

Study changes of appearance in the tree, the swelling buds, and flowing sap.

Note the trees that soonest respond to the warm days, the first blossoms, etc.

Animals:—

Interest the pupils to note the first appearance of returning birds.

Prepare for later study by procuring boxes and placing seeds in them for germination and study.

April.*Plants:—*

The farmer—preparation of soil to receive seeds; seeds sown during this month. Continue study of germination.

Animals:—

Note the appearance of moths and butterflies, and that animals shed their covering. Why?

May.*Plants:—*

Leaves—their growth, shape, change of color.

Flowers—buds, flowers (color, perfume, etc.).

Animals:—

Study of birds—birds that sing, birds that do not sing, birds of beautiful plumage.

Birds' nests—eggs (different sizes, colors, and shapes).

Cruelty of robbing birds' nests.

June.*Plants:—*

Parts of flowers—calyx, sepals, corolla, petals, stamens, carpel.

Animals:—

Birds—care of the young, providing food.

Compare the young of other common animals.

“The course of study is the measuring rod, or rule, which is used to determine at what point in the eight years’ work in the elementary course a pupil’s work has arrived. It should not be used as the Procrustean bed on which to stretch the work of the school in order to secure uniformity.”—*Report of Committee of Twelve.*

OUTLINE OF THE COURSE.

PRIMARY DIVISION.....	First year.....	{ Reading. Spelling. Writing. Language. Numbers.
	Second year.....	{ Reading. Spelling. Writing. Language. Numbers. Geography. Drawing. Nature Study.
	Third year.....	{ Reading. Spelling. Writing. Language. Numbers. Physiology. Geography. Drawing. Nature Study.
INTERMEDIATE DIVISION.....	Fourth year.....	{ Reading. Spelling. Writing. Language. Arithmetic. Physiology. Geography. Drawing. Nature Study and Science.
	Fifth year.....	{ Reading. Spelling. Penmanship. Language. Arithmetic. Physiology and Hygiene. Geography. Drawing. Nature Study and Science.
	Sixth year.....	{ Reading. Spelling. Penmanship. Language. Arithmetic. Geography. State History and Gov't. Physiology and Hygiene. Drawing. Nature Study and Science.
ADVANCED DIVISION.....	Seventh year.....	{ Reading. Spelling. Penmanship. Grammar. Arithmetic. Geography. Physiology and Hygiene. History. Civil Government. Drawing.
	Eighth year.....	{ Reading. Orthography. Penmanship. Grammar. Arithmetic. History. Civil Government. Book-keeping.

The above division is made for the rural school; it is not intended to change the accepted division in graded schools, which makes the first four grades primary and the second four grammar.

THE DAILY PROGRAM.

To aid rural school teachers in arranging a working program, the following three-division program is given. In using it, teachers should note:

1. That a school seldom has all the grades so that the work in some of the divisions will not usually be necessary. This will enable teachers to give some divisions more time, and, also, to have a general school exercise during each day.

2. That beginners and first reader pupils should have at least four short reading exercises daily.

3. That often classes in first and second books on a subject may be so adjusted that both may study the same topic and, for a few days or possibly weeks, recite together. For example, fourth and fifth grade arithmetic classes begin a text-book at the beginning of the year and for a time could recite together; so, too, it often happens that two grades are studying fractions or percentage, or are doing the same line of work in geography, grammar or physiology. In such cases, it is often a great advantage to pupils, as well as a saving of time for teachers, to have such classes recite together. It would be no violation of good classification to select topics with this in view.

4. That the recitations in the advanced divisions can alternate. Especially is this true of eighth and ninth grade work. Three recitations each week in advanced history, geography, physiology, civil government, and in all the ninth grade subjects in the rural school course ought to be sufficient to do all the ordinary work in these subjects.

THREE-DIVISION PROGRAM OF STUDY AND RECITATION.

From, to.	No. Min.	Beginners.	I, II, III.	IV, V, VI.	VII, VIII, IX.
OPENING EXERCISES.					
9:00 to 9:10	10				
9:10 to 9:20	10	READING.....	Reading and Spelling.....	Arithmetic.....	Mathematics. Mathematics. MATHEMATICS. Geography.
9:20 to 9:45	25	Seat work.....	READING AND SPELLING.....	Arithmetic.....	
9:45 to 10:10	25	Recess.....	Seat work and Numbers.....	ARITHMETIC.....	
10:10 to 10:35	25		Seat work and Numbers.....		
10:35 to 10:45	10			GENERAL RECESS.	
10:45 to 11:00	15	READING (5 MIN.).....	FIRST READER (10 MIN.).....	Geography or Physiology.....	Geography. GEOGRAPHY. Grammar. GRAMMAR.
11:00 to 11:15	15	Seat work.....	Numbers.....	Geography or Physiology.....	
11:15 to 11:40	25	Excused.....	NUMBERS (10 MIN.).....	ALTERNATE GEOGRAPHY AND PHYSIOLOGY (15 MIN.).....	
11:40 to 12:00	20		Drawing or Copying.....	Reading.....	
12:00 to 1:00	60			NOON INTERMISSION.	
1:00 to 1:05	5			OPENING.	
1:05 to 1:25	20	Seat work.....	Reading and Spelling.....	READING.....	Reading. READING. History and Physiology. WRITING. History or Physiology.
1:25 to 1:35	30	READING (5 MIN.).....	Reading and Language.....	Grammar.....	
1:35 to 2:15	20	Excused.....	READING AND SPELLING.....	Grammar or Physiology.....	
2:15 to 2:30	15	Beginners excused.....	Writing.....	WRITING.....	
2:30 to 2:45	15		Recess.....	ALTERNATE SIXTH GRADE GRAM- MAR AND PHYSIOLOGY.....	
2:45 to 3:00	15			GENERAL RECESS.	
3:00 to 3:15	15	Seat work.....	Seat work.....	Spelling.....	ALTERNATE HISTORY AND PHYSI- OLOGY. Civil Government or Physiology. ALT. CIVIL GOV'T AND PHYSIOLOGY. SPELLING.
3:15 to 3:30	15		ORAL DRILL (5 MIN.), FIFTH GRADE LANGUAGE (10 MIN.).....	Spelling.....	
3:30 to 3:50	20		Excused.....	Arithmetic.....	
3:50 to 4:00	10			TEXT-BOOK SPELLING.....	

NOTE.—The recitation subjects are printed in small capitals. This should be adjusted to suit the needs of each school.

SUMMARY OF CLASSIFICATION HINTS.

READING—

Beginners and First Reader pupils read often and briefly.

Third and fourth grades use Third Reader.

Fifth and sixth use Fourth Reader.

Seventh and eighth use Fifth Reader or Classics.

WRITING—

Use pen and copy-book from third grade up.

GEOGRAPHY—

Elementary text-book during latter half fourth grade, finishing in fifth.

Advanced text-book in sixth and seventh grades; half each year, alternating, having but one class. See "Alternation in sixth and seventh grades."

ARITHMETIC—

Elementary book may be introduced the last term of the third year, but not unless the other work suggested has been given.

Second book—

Fifth year—Take to decimals.

Sixth year—Review fractions and finish denominate numbers.

Seventh year—Percentage and applications. Mental work.

Eighth year—Book completed. Mental work continued.

GRAMMAR—

Elementary book or books in fifth and sixth years.

Advanced book in seventh and eighth years.

There should be but one class in the advanced book. See "Alternation" as above.

PHYSIOLOGY—

If elementary text-book is used, introduce it in the sixth grade, reciting two days each week. Alternate with sixth grade reading and language, having four recitations a week in each of these.

Advanced book completed in seventh grade.

HISTORY—

Seventh and eighth years, one class. See "Alternation."

COURSE OF STUDY.

FIRST GRADE.

READING—Chart, first reader and supplementary reading.

WRITING—With reading, spelling, and language.

SPELLING—From reader.

LANGUAGE—With reading and spelling.

NUMBERS—Combinations to ten with objects.

Text-book—Reader.

Apparatus—Slate, pencil, sponge, rule.

CORRELATION.—Let the new words in reading be used in the language work and in spelling. This repetition of words deepens the impression and they are thus more easily memorized.

READING.

Purpose.—To gather thought from the printed page.

All reading consists in forming ideas and thoughts occasioned by the printed or written words; and the work divides into primary, intermediate, and advanced reading. The plan of teaching includes, *first*, preparation of the pupil by the use of language lessons, talks about familiar objects, etc.; *second*, much practice in reading requiring the formation of correct concepts by the use of language. An essential to good reading is a clear understanding of what is read.

Preparatory:—

Before beginning in this subject, at least two weeks should be devoted to developing the perceptive faculties of pupils. Many children upon entering school have little notion of any formal way of doing things. They now enter upon a new field, and it is the teacher's duty to acquaint the beginners with their own abilities.

When the child enters school, he has from four hundred to one thousand words as his spoken vocabulary. These words he knows by sound, but the time has now come when the eye should be trained so that certain marks with chalk or ink shall present to his mind the same concepts presented by the known sounds. In the first years of school every effort of the teacher should have in constant view the education of the *eye*, the *ear*, the *hand*. To this end the following exercises are suggested:

For the Eye—

1. Call attention to some object or picture in the room and allow each pupil to tell what he sees. The following objects will furnish material for many lessons: flowers, fruit, clock, table, doll, desk, stove, silver dollar, etc.

2. Call attention to direction, distance, location, color, form, size, and weight, leaving the pupil to form his own conclusions.

For the Ear—

1. Call upon the class to listen to the ticking of the clock.
2. Make very light strokes upon the desk and see who can detect the sound.
3. Procure several different kinds of metal and wood; attach a string to them, hang them upon pegs and with a piece of dry wood tap them, letting the pupils detect the different kinds of wood or metal.
4. Give short sentences for the pupils to repeat.
5. Give directions as to movement; right hand up, left hand up; turning face to the left, face to the right; marching forward, backward, etc.

For the Hand—

Handling objects to determine texture, temperature, and whether they are rough or smooth, hard or soft, rigid or flexible. This might be followed by the use of building-blocks, paper-folding, clay-modeling, etc.

Suggestion.—In connection with this work, the teacher should note very carefully and systematically each pupil's peculiarities or weaknesses. Note dullness of hearing or seeing, etc. Seat pupils in class and in the room with reference to this. Be sure that defective pupils always *hear* what you say, and *see* the work upon the blackboards. Test by asking them to repeat what you say or to tell what you have before them. Many a bright pupil has been called "dull" because he could not see or hear all that was given by the teacher.

Class Work:—

When the child is free from the embarrassment of new surroundings, he should be taught words, and the following plan is suggested:

Suppose you wish to teach the word *orange*. Take one to school, or better, one for each pupil in the class, at first keeping them out of sight. Place very carefully upon the black-boards a number of different words, among which is the word *orange* in several places. You are now ready to call the class and teach the word. Excite the curiosity of pupils to know what you have for them. Let them see the shape of object through the sack, feel, and even smell them. The more mysterious you can be and the more interest you can excite, the better. When the pupils have guessed what you have, let them handle the oranges and talk about them. With their attention at a white heat, tell them you have the word *orange* upon the board, pointing it out.

Now begins the "hunt" for the other "oranges." They will, if you have made the lesson impressive, find every one. When this is done, excuse the class at once, but call their attention to the new word frequently before they again read. Also have the word carefully written or printed upon a card to hand to each pupil. These cards might be mixed with cards containing other words, *very dissimilar* in appearance, and the pupils be required to find the "oranges." If you have never put printed cards into the hands of your pupils, you have missed one of the greatest helps both to them and yourself. The words put upon the board should be as nearly perfect as possible. With poor writing or printing the pupils will make slow progress.

Teach in this way two or three common name-words. When they are learned well, the articles *a* and *the* should be prefixed, as *an apple, an orange, a boy, a cat, the dog, etc.* The pupils should be taught to pronounce these groups as one word, pronouncing "a-boy" as if it were a word of two syllables like "about." Next teach several adjectives, as *a black dog, a white cat, etc.* When the above words are learned thoroughly, a few short sentences should be taught: as *I see, we see, you see, etc.*

Teach also the expressions, *I have, you have, he has, she has*; also pupils' names with *has*.—Mary has, Henry has, etc. In teaching the names of objects use the objects, if possible, letting pupils handle them in various ways: e. g., tell Mary to *get* what you write upon the board, writing "A red ball," "A white doll," "A black book," etc.

In teaching action-words, suit the action to the word. Write upon the board "Tom jumps," "Henry runs," "Mary sings," "Charles throws," etc., letting pupils illustrate with appropriate action. This will vitalize every word and make what is taught a living thing. Arrange the words taught into as many different sentences as possible.

If, by wrestling with some story or sentence containing a new word, the child can possibly make out the word, do not teach it by itself, but in the sentence. Do not go too

fast; avoid getting on hand a large number of partially learned words. Words should be repeated often enough to insure that a couple of days' disuse will not cause their loss from memory.

Elementary Sounds:—

The foundation for *drill upon sounds* should be laid now, the teacher pronouncing words by sound and requiring pupils to think them out and pronounce in the ordinary way; but "spelling by sound" should not yet be attempted.

After the child has learned from fifteen to twenty words, put the letter *s* upon the board. Teach its sound; then pointing to this letter in various words, let the pupil give its sound until, whenever seen, the hissing sound comes to the mind. Then annex it to the word *cat*, letting the child add the sound, making *cats*; erase and annex until pupils instantly recognize and pronounce the word correctly, either with or without *s*. Then use this letter after other words and also prefix it to words already taught; as *at*, *s-at*; *old*, *s-old*; *in*, *s-in*, etc. When *s* is thoroughly learned, teach *r* in the same way, building *r-at*, *r-an*, *r-ing*, etc. Continue teaching the sounds of consonants in connection with reading, using them to form new words from those already taught. Have daily exercises in sight reading.

Many difficult sounds are easily taught by the following plan:

Call *m* the "mother-sound" and have pupils pronounce the word *mother* with you, drawing out the *m-sound* more and more until you "forget to say the rest of the word;" then tell pupils that *m* means that sound, and build such words as *m-at*, *m-an*, *m-old*, etc. Teach *f* as the "father-sound." Also practice dropping letters, as *m* from *man*, *b* from *bat*, *f* from *fan*, letting pupils determine what the word is that remains. When the sound of a letter has been taught, drill upon the same until seeing the letter instantly suggests its sound, and use the letter in forming a number of words before trying to teach another sound. Each new word formed should be used in sentences until the eye knows it instantly.

As soon as the required number of words has been taught in this way and read by pupils from chart or from words made on the board by the teacher, the child should take the book. If he has been properly taught from the chart and board, he is now able to read several pages of the reader at sight. From the start try to have him get a mental picture of what he reads. Individual faults should be carefully observed by teacher, such as faulty pronunciation, articulation, enunciation, and qualities of the voice.

SUGGESTIVE OUTLINE.

Words for First Month:—

Teach in order given the following: A boy, I see, I see a boy; a man, the man, a cat, a cow, a dog, a hen, the doll, the hat, the egg; and, white, black—use all these with *I see* and *See*.

Words for Second Month:—

I have, The boy has, Is, man, book, books, little, big, ran, men, wood, yes, no, play, ride, ear, nose, eyes, he, she, fish, water—use all these with *I have*, *The boy has*, and questions beginning with *Is*.

Build by sound from the base-word, first teaching base-word, then sound of the building letter, lastly prefixing building letter to base-word:—

From the base-word *at*, build *c-at*, *r-at*, *m-at*, *f-at*.

From base-word *it*, build *h-it*, *m-it*, *s-it*, *f-it*.

From base-word *old*, build *s-old*, *f-old*, *m-old*, *h-old*, *c-old*, *t-old*, *g-old*.

(Use these words many times with the verbs taught.)

Words for Third Month:—

Teach sounds of *ch* (sneezing sound), *sh* (keep-still sound), *c* (hard sound), *p* (puffing sound), *w* (as *oo*); then build *cat-ch*, *mat-ch*, *pat-ch*, *ch-at*, *ch-ap*, *ch-ip*, *sh-ip*, *di-sh*, *wi-sh*, *fi-sh*.

Teach *all* and *ear*, using them in sentences: then build *w-all*, *t-all*, *f-all*, *b-all*, *f-ear*, *t-ear*, *h-ear*, using in sentences until the eye knows them readily.

Teach this, that, bad, good, tree, leaves, apple, school, teacher, scholar, one, two, three, where, squirrel, mouth, right, left, smell, jump, and such other words as children are accustomed to use.

Things to be Noted:—

1. Choose only such words as the children are accustomed to use.
2. Create a need for every word before teaching it.
3. Always teach *the* and *an* in connection with other words.
4. Remember that beginners more easily learn such words as are quite dissimilar in appearance.
5. Keep a complete list of all words taught.
6. Use only one form of capital and small letter.
7. Ask pupil to read a sentence silently; then (looking at you) to tell what it is.
8. Insist from the first sentence that a child shall read naturally.
9. Teacher should not read for pupil, and neither teacher nor pupil should point to words while reading.
10. Do not allow pupils to *interrupt* the one reading with a correction.
11. Make the sentence the *unit* and, after the child has learned one or two verbs, incorporate every *new word* into several sentences, at first using only short sentences.
12. Do not ask beginners to study; they cannot study and should have no book until they know at least sixty words.
13. Do not try to keep pupils together in their work.

Seat Work:—

To aid the pupil in naming words at sight, use sentence builders—cards containing the words written or printed on them. As soon as a word or two can be recognized at sight, the pupil should be required to build the sentences, using separate words on bits of cardboard. Continue building sentences in this way until fifty or sixty words have been taught. This will take from two to three months. The words should be taken from the chart or reader to be used, and it will also be found helpful to lead the child to build words by *sound* and to give him power to pronounce words he has never seen.

Supplementary Reading:—

Several different readers should be used so that the same selection may not be read until tiresome. Let every lesson be fresh. Reading “by turn” in the class is not advisable. Now is the proper time for teaching such details as position of hands, standing erect, keeping the chin in proper position, etc.

SPELLING.

Method.—The preceding word-building should be the foundation of spelling, and from this point *letters*, as well as sounds, must be thoroughly taught. If pupils spell before using a reader, let them spell by ear and not by sight. After a reader is taken up, they should spell all the words in each lesson. Below is a suggestive outline.

Form lists of words as follows:—

- | | | | |
|------------|---|------------|---|
| 1. From at | $\left\{ \begin{array}{l} \text{bat} \\ \text{cat} \\ \text{fat} \\ \text{hat} \\ \text{mat} \\ \text{pat} \\ \text{rat} \\ \text{sat} \\ \text{vat} \end{array} \right.$ | 2. From an | $\left\{ \begin{array}{l} \text{ban} \\ \text{can} \\ \text{Dan} \\ \text{fan} \\ \text{man} \\ \text{pan} \\ \text{ran} \\ \text{tan} \\ \text{van} \end{array} \right.$ |
| 3. From it | $\left\{ \begin{array}{l} \text{fit} \\ \text{lit} \\ \text{mit} \\ \text{pit} \\ \text{sit} \\ \text{wit} \end{array} \right.$ | 4. From in | $\left\{ \begin{array}{l} \text{bin} \\ \text{din} \\ \text{fin} \\ \text{gin} \\ \text{pin} \\ \text{sin} \\ \text{tin} \\ \text{win} \end{array} \right.$ |
| 5. From et | $\left\{ \begin{array}{l} \text{bet} \\ \text{get} \\ \text{jet} \\ \text{let} \\ \text{met} \\ \text{net} \\ \text{pet} \\ \text{set} \\ \text{wet} \\ \text{yet} \end{array} \right.$ | 6. From en | $\left\{ \begin{array}{l} \text{Ben} \\ \text{den} \\ \text{fen} \\ \text{hen} \\ \text{ken} \\ \text{men} \\ \text{pen} \\ \text{ten} \\ \text{wen} \end{array} \right.$ |
| 7. From ut | $\left\{ \begin{array}{l} \text{but} \\ \text{cut} \\ \text{hut} \\ \text{jut} \\ \text{nut} \\ \text{rut} \end{array} \right.$ | 8. From un | $\left\{ \begin{array}{l} \text{bun} \\ \text{fun} \\ \text{gun} \\ \text{nun} \\ \text{pun} \\ \text{run} \\ \text{sun} \end{array} \right.$ |

Teach that final *e* lengthens the vowel, as—

at - ate	ban - bane
bat - bate	can - cane
rat - rate	fan - fane
fat - fate	man - mane
hat - hate	pan - pane
mat - mate	van - vane

Teach that two vowels together in a monosyllable *generally* give the long sound of the first, as—

bet (e) beet	met (e) meet
bet (a) beat	met (a) meat
den (e) deen	net (a) neat
den (a) dean	set (a) seat

Following this suggestion, drill pupils on such words as these—

ail	fain
bail	gain
fail	main
hail	pain
jail	rain
nail	die
pail	fie
rail	hie
sail	lie
tail	pie
wail	tie

Syllabication:—

Each syllable should be spelled separately with sufficient pause after it (if not pronounced) to denote syllabication without pronunciation; but pronunciation of syllables is an aid in teaching articulation, and its judicious use in lower grades is recommended.

WRITING.

Pupils' slates should be ruled on one side about half way down, as a copy book is ruled.

The pencil should be long and sharp.

Be careful about the form of letters, the movement, and the holding of pencil.

All written work should be carefully inspected by the teacher.

Very little effort should be made to teach writing in this grade.

LANGUAGE.

Purpose.—To teach correct expression in words.

Oral Work:—

From the very first induce the children to talk, *using full statements* in answer to all questions in class work. Frame questions so that pupils must use sentences in answering. Talk about familiar objects, things that interest them, such as animals, trees, plants, games, etc. Tell short, easy stories and have pupils reproduce them orally. As soon as pupils begin to read from the book, have them tell in their own words what they have read.

Strive to awaken the imagination and kindle the powers of observation and thought. Every school exercise should be treated as a language lesson, so that the work in other classes may not undo that of the language class. This is not, however, to be construed as advising continued criticism, but to emphasize the value of securing exact language.

Teach uses of *is* and *are*, *was* and *were*, *have* and *has*, *this* and *that*, *these* and *those*. To test the pupils, write sentences with blanks for pupils to fill out. Have pupils use *is* and *are* in sentences with the following, both singular and plural forms:

horse	girl	book	pencil
slate	boy	chair	leaf
door	knife	man	woman

Law of use { Use *is* when speaking of one.
 { Use *are* when speaking of more than one.

For variation write sentences or give them orally, using *is* or *are*, and allow pupils to change the number form of verb, making such other changes as are necessary. Never place incorrect forms before small pupils.

Written Work:—

As soon as pupils can write, have them put all the new words in the reading lesson on their slates each day.

Before leaving this grade each pupil should be able—

1. To write his name well.
2. To write his postoffice address.
3. To write the name of his township, county, and state.
4. To write the names of familiar objects.
5. To write lists of words from the reading lesson.
6. To write short sentences of from three to six words.

NUMBERS.

Purpose.—To teach numbers only as *applied to quantity*, using all possible combinations and separations from 1 to 10.

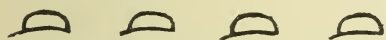
Material:—

Tooth-picks, splints, shoe-pegs, corn, small corks, pasteboard, counters.

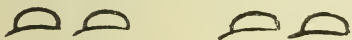
At first no effort should be made to teach mathematical facts and very little to teach symbols. Let every question be directed to the use of objects by the pupils. Ask no questions without placing in the pupils' hands material for *seeing* the answer. First teach counting of objects, beginning with what the child knows.

Grouping:—

Before attempting combination or separation, teach pupils to recognize groups of objects in *twos*, *threes*, and *fours*. Thus, place two crayons in the hand and ask how many. Then three and four, changing these rapidly until they can name the number in each group. Vary this grouping by using *different objects*, holding up fingers, books, etc. Continue this exercise until pupils can recognize *instantly* any group of two, three, or four objects. Do not attempt to teach the child to recognize any group composed of more than four objects. Have the children take several objects and separate them into groups of two, three, and four. Teach pupils to measure each number by all numbers within itself. Let them make groups on their slates as follows:



(The four single objects represent the number four.)



(Here the two groups represent the number four.)



(In this the number four is represented by one group of three objects and one single object.)

Then the teacher should make pupils see clearly that in each of these three rows there are four caps. In the first row there is but one cap in a place; in the second, two in one place (a group); in the third, three in one place and one in another.

Next lead them to tell what they see in these groups, thus: There are four 1's in four; there are two 2's in four; there is one 3 and a 1 in four. Or two caps and two caps are four caps; three caps and one cap are four caps; four caps less two caps are two caps; four caps less one cap are three caps; four caps less three caps is one cap.

Again, hold in your hand two tooth-picks or any objects. Ask, "How many tooth-picks?" Place two more with the first, keeping the two groups separate. "Now how many?" Pupils say, "Four tooth-picks." Then lead pupils to say, "Two tooth-picks and two tooth-picks are four tooth-picks." Place four in the hand, asking, "How many?" Pupils say, "Four tooth-picks." Then take away two. "Now how many?" Pupils say, "Two tooth-picks." Then lead pupils to say, "Four tooth-picks less two tooth-picks are two tooth-picks." Holding four, take four away, and as before pupils are led to say, "Four tooth-picks less four tooth-picks are none." Next let pupil take two tooth-picks one time, then two times, leading him to say, "If I take two tooth-picks twice, I have four tooth-picks."

To teach one-half of a number, let a pupil select *two other pupils* and hand the objects to them alternately, one by one, until all have been distributed; then count the number each has.

In teaching *one-third*, have the pupil select three persons, in teaching *one-fourth*, four persons, etc. When he can do this understandingly, let him *imagine* the persons and simply lay the sticks in groups. This should be thoroughly mastered before any attempt is made to divide by 2, 3, 4, etc., which is a very different problem.

To divide by 2 is to find how many two-bundles a certain other number of objects contains. In this work the pupil must take away each time a two-bundle, keeping

each two-bundle by itself and counting them when the number is exhausted. At first use the expression "How many two-bundles," but later "How many 2's." Rubber bands or strings should be used and the objects actually made into bundles. In dividing by 3, use a three-bundle; by 4, a four-bundle, etc.

The following study of the number *four* is given as a suggestive outline that may be used not earlier than the third month:

Study of the Number Four.

1. A "four-bundle"—represent it by figure 4.
2. Discoveries in four, given in order of teaching.

Four ones.
Two twos.
Three and one.
Two and one and one.
Four minus (or less) one.

Four minus two.
Four minus three.
Four minus four.
One-half of four.
One-fourth of four.

(Remember this is *oral* work with objects.)

Develop all numbers up to ten as explained above with the number four, being careful to use no combination that will introduce a number larger than ten. This work will take the greater part of the first year. No haste should be made. The same questions should be repeated in different forms until the pupils know at once how to proceed to find results.

Symbols:—

When the above work is accomplished begin to use the plus and minus signs, but teach no signs until pupil can perform the following with objects:

1. Count to 20.
2. Find the sum, not above 12, of any two numbers.
3. Find the difference of any two numbers not above 10.
4. Find result of two 3's, three 4's, two 5's, etc.
5. Find $\frac{1}{2}$ of 2, of 4, of 6, of 8, of 10, of 12.
6. Find $\frac{1}{3}$ of 6, of 9, of 12.
7. Find $\frac{1}{4}$ of 8, of 12.
8. Divide among 2, 3, or 4 pupils, 6, 8, 10, or 12 things.

(Bear in mind that these are not to be taught as *facts*, but the pupil is shown how to find results with *objects*.)

It is very important that pupils understand the sign language, and the following plan is helpful:

Send pupils to the black-board. Tell them a story, instructing them to place the sign + or — when you pause in the story; e. g., "I had ten dollars and found five dollars" (pause, and pupils write $10 + 5$), "then I earned four dollars" (pause, and pupils write $+ 4$), "then I lost six dollars" (pause, and pupils write $- 6$). Repeat the exercise daily until there is no hesitation in placing the proper sign.

Principles of Grube:—

1. Each lesson in arithmetic must also be a lesson in language.
2. The teacher must insist on readiness and correctness of expression. As long as the language for the number is imperfect, the idea of the number will be defective.
3. The teacher must require the pupil to speak as much as possible.
4. Concert answers should occasionally be given, but usually individual answers should be required.
5. Every process must be illustrated by means of objects.
6. Measure each new number with the preceding ones.
7. Teacher must insist on neatness in making figures.

(Develop all possible combinations of each number in accordance with the above.)

Drill Exercises:—

Give drills in rapid addition of figures in columns, no sum to be greater than ten, thus:

				2	1	2
2	2	1	3	2	3	2
2	1	3	3	2	3	2
2	2	2	3	4	3	2
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
6	5	6	9	10	10	10

In the same way give rapid drills in subtraction, thus:

4	6	8	10	5	5	9
-2	-3	-4	-5	-3	-2	-4
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
2	3	4	5	2	3	5

In adding say, *two, four, six, eight*. Do not have pupils say, *two* and *two* are *four* and — *two* are *six* and *two* are *eight*. The latter takes too much time.

In connection with this work teach pupils to make neat figures and to write the words that represent them, also Roman numerals. A device like the following will be found valuable:

one	two	three	four	five
1	2	3	4	5
I.	II.	III.	IV.	V.

It may seem to many that this is a small amount of work for a year, but remember that it pays to do this elementary work thoroughly. In fact, the success of the second year's work as here-in outlined, depends *entirely* upon the comprehension of number as "applied to quantity."

SECOND GRADE.

READING—Second reader and supplementary reading.	NUMBERS—Combinations of digits with problems.
SPELLING—From reader.	PHYSIOLOGY—Practical lessons regarding daily habits.
WRITING—With reading, spelling, and language.	GEOGRAPHY—Preparatory work.
LANGUAGE—With all class exercises.	DRAWING—Same as first year with addition of geometric figures.

NATURE STUDY.
(See Appendix.)

Text-book—Reader.

Apparatus—Slate, pencil, sponge, rule.

CORRELATION.—Broaden the work of correlation as suggested in first year by including geography.

READING.

Purpose.—(a) Same as in first grade. (b) Expression.

Teach the new words at the head of each lesson so that pupils will know them at sight, pronounce them correctly, and know what they mean. Be careful to secure correct pronunciation and distinct articulation. Note the following:—

1. To teach pupils to know words at sight, point rapidly from one word to another.
2. To teach the meaning of words, require pupils to give the words in sentences, after they have been fully explained, sentences to be both oral and written. To be sure that pupils get the thought, question them thoroughly on what they read.
3. To secure correct pronunciation, the teacher must be careful about his own pronunciation.
4. To secure good articulation, give frequent drills on elementary sounds and articulation exercises.

Supplementary Reading:—

Pupils should be required to commit to memory short choice selections to be recited before the class. These selections may be taken from the reader or from any thing not more difficult than the reader, and should be thoroughly understood before they are committed.

There is no place in the school course where supplementary reading can be made more profitable. It should generally be *sight reading* of interesting stories, very easy second grade or hard first grade work. Let one pupil read a portion and the others listen, and then have the story told by them. This insures attention and inspires pupils to read well.

Give additional attention to errors of pronunciation and to good expression. Aim at naturalness. Do not read very much for pupils to imitate. The skillful teacher succeeds in filling the pupils so full of the sentiment of the story that expression is spontaneous. Do not teach that the voice should fall at a period and be kept up at a comma; it is not true.

(See library list.)

Elementary Sounds:—

Continue the study of elementary sounds as they occur in the reader, beginning now to make a study of vowels.

Teach the diacritical marks used with long and short vowel sounds. Drill until familiar with them. (Use Webster's International as a guide.)

SPELLING.

Spell all the new words at the head of each reading lesson, giving daily reviews on hard words and a test each week on the work done.

Considerable time should be given to written exercises in spelling.

The second and third years are the *spelling era*. Second and third reader pupils should spell rapidly and accurately every word in their finished work. This is accomplished by repetition.

NOTE.—“One trial only” is the key to good spelling.

WRITING.

Continue writing with a pencil. In lower grades attention should be given to position of the slate or paper, manner of holding the pencil, also to the direction from which the light strikes the paper. See to it that the pupils' eyes are not in range of the reflected light.

Teachers should attend to the following:

1. Rule slates or paper with head-lines, with spaces at least 3-16 in. wide.
2. Place a guide slant-line at the beginning of each line.
3. Show the pupil *how* to make a letter, not upon the black-board only, but upon his slate or paper; especially do this in using the pen. Do not confine small pupils to the letter; make the word or short sentence the unit of their work, though older pupils can be interested in elements and should master them.
4. Do not ask first and second grade pupils to write too long at a time. When the pen is used, preserve one copy each week for future comparison.
5. Insist upon neatness.
6. Never chide the poor penman.

LANGUAGE.

Purpose.—Second grade work is simply a continuation of first grade work.

For review of preceding year try exercises similar to the following, changing the pronouns to *they*: He is my friend. She is in our class. Has she a new book? Was she here?

Oral Work:—

Continue to demand complete statements in answer to questions. Teach *had* in connection with *have* and *has*. Develop *see, saw, seen; go, went, gone*.

Law of Use.—*Have, has, and had* are used with *seen* and *gone*, but never with *saw* nor *went*.

Add similar verbs for drill, and continue the use of sentences with blanks to be filled by pupils.

2. Write two or more sentences containing *a* and *an* upon the board; then lead pupils to see why *an* is used before vowel sounds and *a* before consonants, emphasizing by repetition. Also give list of name-words, requiring pupils to supply *a* or *an*.

3. Tell or read easy, short stories. Have these stories repeated, first, by answers to questions which you ask; second, as wholes, in the child's own language.

Written Work:—

Have pupils write sentences containing words from the reading lessons. Have them write statements which they have already expressed orally.

Teach the use of capital letters:

1. At the beginning of sentences.
2. In proper names.
3. The words I and O.

Teach also the use of period and question mark at the close of sentences.

Drill on formation of simple possessive, and on the use in sentences of the verbs studied in oral work.

In both oral and written work teach *to, two, too; hear and here; know and no; their and there.*

Suggestion:

Since, according to the Committee of Ten, written composition should begin not later than the first term of the third school year, ample preparation for such work should be made during the latter part of the second year. To aid in this work use pictures and objects, requiring pupils to write short sentences about them; also give list of familiar words to be used in sentences.

Cautions:—

1. Always see that written work is done neatly.
2. Always state plainly what pupils are to do at their seats.
3. Make lessons short and see that they are done as directed.
4. Do not neglect to have some of these exercises every day.
5. Remember you can have no excuse for neglecting or refusing to do any of this work.
6. From time to time send samples of this work to the school commissioner. This will aid you greatly in getting good results.
7. Bear in mind daily and hourly the necessity and importance of teaching children to talk correctly.

NUMBERS.

Purpose.—(a) Same as first grade. (b) The teaching of mathematical facts.

When the first year's work has been well done, work with objects will need less attention. Review constantly, in connection with this year's work, all that was done in the previous year, making that in reality a part of it. Teach carefully the use of the signs $+$, $-$, \times , \div . This will require from four to six weeks.

Count by 2's to 20, by 3's to 30, by 4's to 40, by 5's and 10's to 100, interspersing this with other exercises.

Begin now to memorize *facts* concerning numbers.

COMBINATION WORK.

1st week, combinations of 2 and 3,—

$$\left\{ \begin{array}{l} 2 + 3 = 5 \\ 3 + 2 = 5 \end{array} \right\} \quad \left\{ \begin{array}{l} 5 - 2 = 3 \\ 5 - 3 = 2 \end{array} \right\} \quad \left\{ \begin{array}{l} 2 \times 3 = 6 \\ 3 \times 2 = 6 \end{array} \right\} \quad \left\{ \begin{array}{l} 6 \div 2 = 3 \\ 6 \div 3 = 2 \end{array} \right\} \quad \left\{ \begin{array}{l} \frac{1}{2} \text{ of } 6 = 3 \\ \frac{1}{3} \text{ of } 6 = 2 \end{array} \right\}$$

Pupils should put these ten combinations upon their slates each day for a week and also give them from memory until there is no hesitation. In connection with this each day place upon the board five or more problems whose solution will involve some of these forms, pupils bringing to the class the proper form upon their slates.

For example:

1. Mary had 2 apples and her brother gave her 3 more. How many had she then?

Solution: $2a + 3a = 5a$.

2. At 2 cents apiece how many oranges can I buy for 6 cents?

Solution: $6c \div 2c = 3$, or 2 cents can be taken out of 6 cents 3 times.

3. A man divided 6 cents equally among 3 boys. How many cents had each?

Solution: $\frac{1}{3}$ of $6c = 2c$, or 6 cents is divided among 3 persons.

2d week, combinations of 2 and 4,—

$$\left\{ \begin{array}{l} 2 + 4 = 6 \\ 4 + 2 = 6 \end{array} \right\} \quad \left\{ \begin{array}{l} 6 - 2 = 4 \\ 6 - 4 = 2 \end{array} \right\} \quad \left\{ \begin{array}{l} 2 \times 4 = 8 \\ 4 \times 2 = 8 \end{array} \right\} \quad \left\{ \begin{array}{l} 8 \div 2 = 4 \\ 8 \div 4 = 2 \end{array} \right\} \quad \left\{ \begin{array}{l} \frac{1}{2} \text{ of } 8 = 4 \\ \frac{1}{4} \text{ of } 8 = 2 \end{array} \right\}$$

Give five suitable problems each day, with plenty of oral drill upon the combinations. Pupils must absolutely *know* them before passing to other work. Have pupils bring original problems that apply to above forms.

3d week, combinations of 2 and 5,—

$$\left\{ \begin{array}{l} 2 + 5 = 7 \\ 5 + 2 = 7 \end{array} \right\} \quad \left\{ \begin{array}{l} 7 - 2 = 5 \\ 7 - 5 = 2 \end{array} \right\} \quad \left\{ \begin{array}{l} 2 \times 5 = 10 \\ 5 \times 2 = 10 \end{array} \right\} \quad \left\{ \begin{array}{l} 10 \div 2 = 5 \\ 10 \div 5 = 2 \end{array} \right\} \quad \left\{ \begin{array}{l} \frac{1}{2} \text{ of } 10 = 5 \\ \frac{1}{5} \text{ of } 10 = 2 \end{array} \right\}$$

Five problems each day.

4th week, combinations of 2 and 6,—

$$\left\{ \begin{array}{l} 2 + 6 = 8 \\ 6 + 2 = 8 \end{array} \right\} \quad \left\{ \begin{array}{l} 8 - 2 = 6 \\ 8 - 6 = 2 \end{array} \right\} \quad \left\{ \begin{array}{l} 2 \times 6 = 12 \\ 6 \times 2 = 12 \end{array} \right\} \quad \left\{ \begin{array}{l} 12 \div 2 = 6 \\ 12 \div 6 = 2 \end{array} \right\} \quad \left\{ \begin{array}{l} \frac{1}{2} \text{ of } 12 = 6 \\ \frac{1}{6} \text{ of } 12 = 2 \end{array} \right\}$$

Problems to show mechanical combinations, or the mechanics of numbers, may here be taught. For instance, multiply 23 by 2, 23 by 3, 22 by 4, 33 by 3, etc., selecting numbers so that no partial product will be more than 9. Five problems daily.

Vertical lines to indicate columns of figures are sometimes helpful as a guide to pupils in writing down the partial products. Thus,—

	2	3	2	
		3	2	
6	4	6	4	
7	4	2	4	

Pupils should not be allowed to use this above third grade.

5th week, combinations of 2 and 7,—five problems daily.

Pupils ought now to be able to make these forms for themselves, always using the smaller digit *first*.

Drill upon this work until the mention of two digits suggests these combinations to the mind of the pupil.

Continue mechanics of numbers in addition and subtraction, using problems that involve carrying of tens, but introducing no digit higher than the combinations already taught.

6th week, combinations of 2 and 8,—twenty problems.

Continue mechanical work in addition, subtraction, and multiplication.

Drill on reading numbers of three figures.

7th week, combinations of 2 and 9.

Give twenty problems and let pupils make many original ones. Continue mechanics of numbers.

8th week, combinations of 3 and 3, 3 and 4.

Give daily problems. Many variations may now be made. 3 is $\frac{1}{3}$ of? 4 is $\frac{1}{3}$ of? 2 is $\frac{1}{6}$ of? etc.

9th week, combinations of 3 and 5.

Spend much time now reviewing combinations. Continue mechanics of numbers.

10th week, combinations of 3 and 6, 3 and 7.

Drill, drill, drill! Continue mechanics of numbers throughout term.

11th week, combinations of 3 and 8.

12th week, combinations of 3 and 9.

13th week, combinations of 4 and 4, 4 and 5.

14th week, combinations of 4 and 6, 4 and 7.

15th week, combinations of 4 and 8, 4 and 9, 5 and 5, 5 and 6.

16th week, combinations of 5 and 7, 5 and 8.

17th week, combinations of 5 and 9. Reviews.

18th week, combinations of 6 and 6, 6 and 7, 6 and 8.

19th week, combinations of 6 and 9, 7 and 7, 7 and 8.

20th week, combinations of 7 and 9, 8 and 8, 8 and 9, 9 and 9.

Give spice to this work by a variety of problems and examples in mechanics of numbers. Pupils can easily learn to add long columns and multiply by three figures with carrying.

Scheme for Adding:—

- 3 In process of adding as soon as a *ten* occurs in the result, drop it, representing
 8 it by the figure 1 placed across the figure last used; then, carrying the units,
 7 continue the addition, dropping the tens wherever they occur. Thus in
 9 example given the tens will fall on 5, 6, 9, 7, 3, and the process be as follows:
 6 9 and 5 are 14; (dropping the ten) 4 and 4 and 6 are 14; (dropping the ten) 4
 4 and 9 are 13; (dropping the ten) 3 and 7 are 10; (dropping the ten) 8 and 3
 5 are 11; (dropping the ten) place the 1 in the answer, prefixing the number of
 9 tens dropped.
 — With practice this naturally becomes much abbreviated until the pupil thinks
 51 simply—4—8—4—3—0—1.

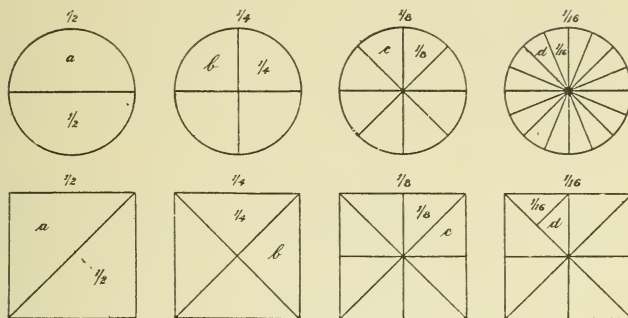
As pupils become proficient, they should be taught to group.—first, all combinations making 10; second, combinations of three and even four figures.

Business men justly complain because children well advanced in arithmetic cannot add with certainty and dispatch. This is the time to drill upon this very important part of a business education. The interest may be intensified by *contests in addition*, and the following plan is suggested:

1. Choose sides.
2. Write the numbers upon the blackboard, letting pupils write them upon their slates.
3. At the given word—"add."
4. The one who first gets the result places his slate upon the teacher's desk with the answer turned down; the second follows with his, the third with his, etc.
5. The numbers upon the board are added and the correct answer determined.
6. The pile of slates is then turned *bottom up*, bringing the *first* slate on top and the others in regular order.
7. The teacher takes the first slate and reads something as follows: "West side, correct; 100 points." Then the second slate, "East side, correct; 95 points." Then the third slate, "East side, incorrect; zero." Then the fourth slate, "West side, correct; 90 points," etc., marking each correct answer five points less than the preceding one. The side scoring the most points wins. This need not be confined to any grade, but is a lively exercise for the entire school.

Fractional Parts:—

Teach the idea of comparison both of wholes and parts. For comparing wholes, use bundles and groups; for parts, use objects that lose their identity by being divided. Circles and squares about 3 inches across, carefully measured and cut from card board may be prepared like these:



Question the pupils as follows:

Q. How many parts in the first?

A. There are two parts in the first.

Q. How do they compare in size?

A. They are the same size.

Q. Then what part of the circle is each part?

A. Each part is one-half of the circle.

Deduce from this that dividing anything into two equal parts, produces halves; treat the division into fourths in the same manner.

Q. What part of the circle is a ?

A. a is one-half of the circle.

Q. Why?

A. Because it is one of the two equal parts.

Q. How many of the b 's will make an a ?

A. Two b 's will make an a .

Q. What part of an a is a b ?

A. A b is one-half of an a .

Q. Why?

A. Because a b is one of the two equal parts of an a .

Q. What is $\frac{1}{2}$ of one-half?

A. $\frac{1}{2}$ of one-half is one-fourth.

Q. How many of the one-fourths will make a one-half?

A. Two one-fourths make a one-half.

Q. How many one-fourths make a whole circle?

A. Four one-fourths make a whole circle.

In like manner develop the one-eighth and one-sixteenth, introducing figures in place of words in expressing the fractional part. There is no better place to teach exactness of expression than in this work.

Other questions that pupil should answer readily, using the same objects.

What part of a is c ? Of $\frac{1}{2}$ is $\frac{1}{8}$?

What part of a is two c 's? Of $\frac{1}{2}$ is $\frac{3}{8}$?

How many d 's will make an a ? How many $\frac{1}{16}$'s make a $\frac{1}{2}$?

How many times $\frac{1}{16}$ is $\frac{1}{4}$? $\frac{1}{4}$? $\frac{1}{8}$?

How many times can a c be taken out of an a ? How many times, then, is a c contained in an a ?

How many times is $\frac{1}{8}$ contained in $\frac{1}{2}$? In a whole circle? How many $\frac{1}{8}$'s to make three $\frac{1}{8}$'s? What part of $\frac{3}{8}$ is $\frac{1}{8}$?

Put $\frac{1}{2}$ and $\frac{1}{4}$ together.

Q. What have you?

A. I have three $\frac{1}{4}$'s.

Q. Put $\frac{1}{2}$ and $\frac{1}{8}$ together. What have you?

A. I have five $\frac{1}{8}$'s.

The use of a , an , and the in above questions is to suggest to pupils the concrete nature of fractional parts. When this is fully appreciated, the use of these articles should be omitted.

Continue this work until pupils can leave the objects and readily use halves, fourths, and eighths in such examples as these:—

$$\begin{array}{r} \frac{1}{2} + \frac{1}{4} = ? \\ \frac{1}{4} + \frac{1}{4} = ? \\ \frac{1}{4} - \frac{1}{8} = ? \end{array}$$

$$\begin{array}{r} \frac{1}{2} + \frac{3}{4} = ? \\ \frac{1}{4} + \frac{3}{8} = ? \\ \frac{3}{4} - \frac{1}{8} = ? \end{array}$$

$$\begin{array}{r} \frac{1}{2} + \frac{3}{8} = ? \\ \frac{3}{8} + \frac{3}{4} = ? \\ \frac{1}{2} - \frac{3}{8} = ? \end{array}$$

Develop next the one-third, one-sixth, one-ninth, and one-twelfth. Then combine halves, thirds, sixths, fourths, and twelfths.

This will make an endless amount of seat-work. Place examples upon the board and let the pupils work them out with the cardboard parts. Have sets enough for each pupil. Use much oral work and cardboard illustration in class. Let pupils make problems for each other. This work can be commenced in the second grade and completed in the third.

Whenever an example is indicated by signs, accustom the pupils to saying "That means," etc. For instance,—

Given $\$4 \times 3$; pupil says "That means three times four dollars," or $\$4$ three times.

Given $\$12 \div 4$; pupil says "That means one-fourth of twelve dollars" (not twelve dollars divided by four).

Tables of Measure:—

The economical teacher will make many problems using the common tables of commerce. Thus the table of long measure would naturally be taught with the combinations of 3 and 4, and in this grade pupils should thoroughly learn the following:—

1. Table of U. S. coins to one dollar.
2. How to make change to fifty cents (using toy money).
3. Liquid measure to and including the gallon.
4. Dry measure.
5. Number of inches in a foot; feet in a yard.
6. Number of things in a dozen.
7. Number of days in a week; weeks in a month; months in a year.

(In all these teach the *fractional* parts as, six inches is one-half a foot; six months is one-half a year, etc. Much of this work should be seat-work.)

GEOGRAPHY.

Purpose.—To encourage observation, especially of nature.

1. Form.

Lead pupils to observe form in objects about them, such as spherical, cylindrical, etc.; fruits, twigs, trunks of trees, and bodies of animals.

2. Color.

Observe,—grass, leaves, flowers, fruits, animals, clouds, etc.

3. Place of objects; as,—on the right hand, on the left hand.

4. Prepositions of position; as,—before, behind, above, below, beside, between, etc.

5. Method:

- (a) Teacher places.....Pupil imitates.
 Teacher dictates.....Pupil places.
 Teacher places.....Pupil describes.
 Teacher disarranges.....Pupil replaces from memory.
 Pupil dictates.....Teacher places.

- (b) In somewhat the same way illustrate,—
 Right-hand corner of table or desk.
 Left-hand corner of table or desk.
 Front right-hand corner of table or desk.
 Back left-hand corner, etc., of table or desk.

- (c) East, west, north, south; north-east, north-west, south-east, south-west.

Direction:—

Direction during the day, known by shadows; during the night, by north star. Tell pupils how the southern slaves used this star as a guide in their escape from slavery and have them learn to point it out; also exhibit compass if possible.

Distance:—

The foot, rod, mile. For the foot, use the foot rule; for the rod, the ordinary fence board; for the mile, if the schoolhouse is upon a section line, use the distance to the next section line. Let pupils walk this distance and use it to image other miles. These measures should be used until the teacher is certain that the words foot, rod, and mile have definiteness.

Teach a scale one inch to the foot, then draw the top of a desk, blackboard, etc., by this scale. Teach a scale one inch to the rod and draw the school room and school ground by this scale, locating the house, pump, wood-shed, and trees.

Below is given a suggestive device for teaching the above, together with location.

Let pupils represent the corners of the township, thus:—

Question pupils in regard to direction with respect to these four persons. Have George walk from the north-east corner of the township to the south-west, telling the direction in which he goes.

John	Mary
Helen	Henry

Relative distance may also be taught; e. g., how far from Helen to John? From Mary to Henry? etc. If there are 36 pupils, each can be named a section number and be required to take his proper place in the "township."

This device is very interesting when applied to map work in higher grades. In studying North America name one pupil Cape Cod, another Cape Charles, another Cape Sable, another Cape St. Lucas, another Cape Mendocino, having each take his

place with reference to direction and distance. Then have a pupil travel along the coast from Cape Cod to Cape Charles, making his path conform to prominent irregularities of the coast line; another from Cape Charles to Cape Sable, etc. This is best done on the school grounds and may be applied to the study of mountains, rivers, lakes, and cities.

Seasons:—

Continue noting seasons as they pass with reference to temperature, moisture, and vegetation.

Continue lessons on common articles, such as sugar, coffee, tea, pepper, cotton, and wool.

OBSERVATION WORK.

NATURE STUDY AND SCIENCE.

While much has been said recently concerning nature and science in the primary schools, the work seems to be as yet in a formative state. It is conceded on all sides that these should be taught, but the questions as to how much, and how to teach them in the ordinary graded and rural schools, are not yet definitely answered. The following suggestions are therefore to be considered as elastic enough to fit any ordinary work:

Purpose.—(a) To train in correct habits of observation. (b) To accumulate facts which will be of service in other study.

FIRST AND SECOND GRADES.

Water:—

Its flow; drops—shape and use.

Seasons (as they pass):—

Wet season, dry season—healthful or unhealthful.

Animals:—

Habits of common animals (similarities and differences)—squirrel, rabbit, woodchuck.

Plants:—

1. Germination of seeds—bean, corn, etc.
2. Study of trees—(a) twigs and buds; (b) shape, bark, leaf.

NOTE.—Take some special tree and make careful study of it; then test pupils in finding the same kind of tree in other places.

Insects:—

Butterflies and other moths, grass-hopper.

DRAWING.

Purpose.—To train the eye and hand.

During the first year the following should be taught:

Lines,—

- | | | | |
|----------|------------------------|--------------|--|
| (a) Kind | { straight.
broken. | (b) Position | { vertical.
horizontal.
oblique. |
|----------|------------------------|--------------|--|

Exercise:—

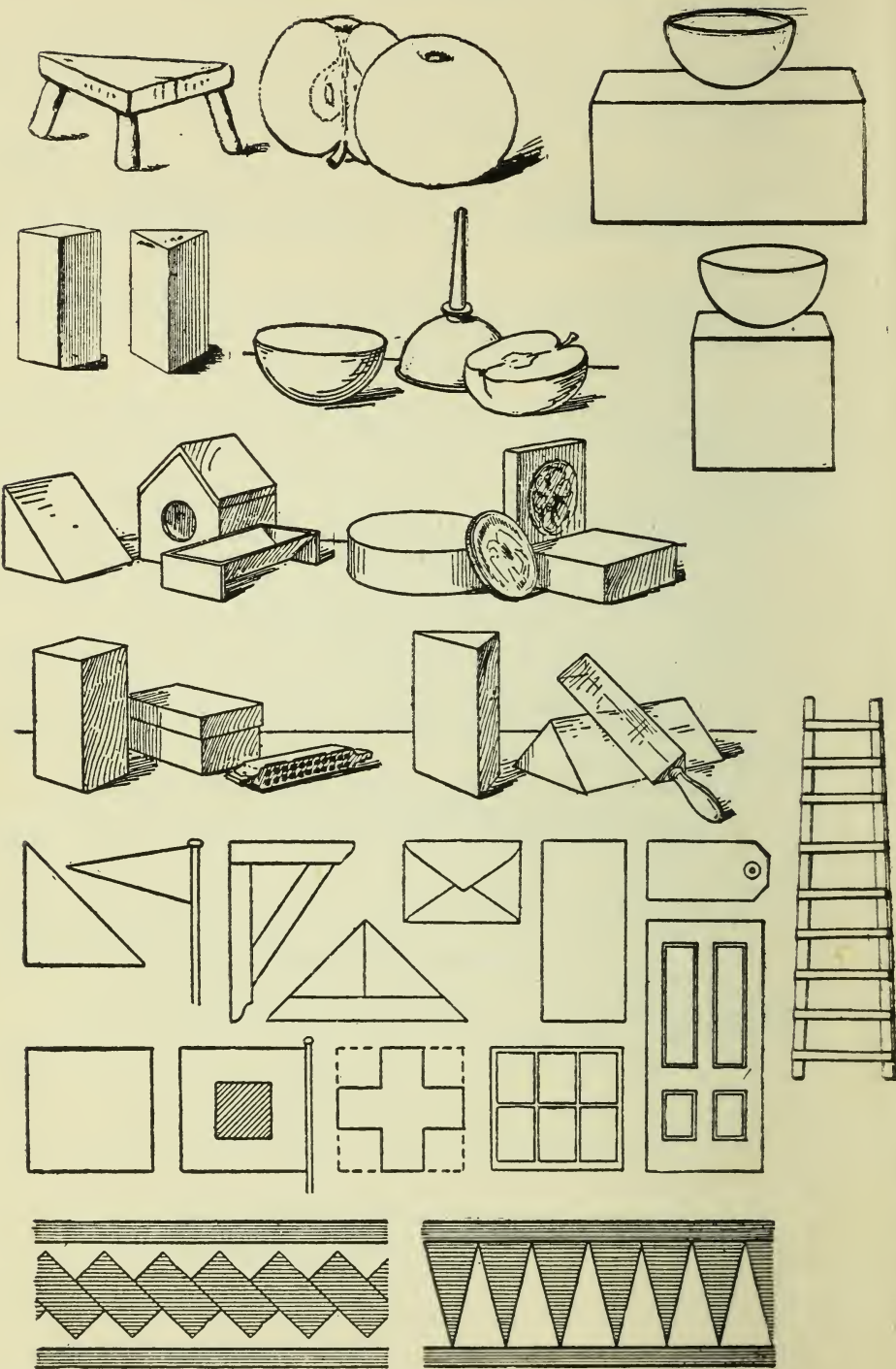
- (a) Hold a string vertically at the blackboard—represent by drawing a line.
- (b) Hold string horizontally—represent by a line.
- (c) Form a square corner with the string—represent by a line.
- (d) Form a sharp corner with the string—represent by a line.

Continue these exercises, the pupils repeating work with the pencil. Dots for tracing are helpful to beginners, but too frequent use of them is to be avoided. Of course the dots should always be placed by pupil.

Suggestions:—

1. General preliminaries:
 - (a) Show pupils how to hold pencils—always at right angles to the line.
 - (b) Teach how to sit and how to move the hand and arm.
 - (c) Do not use a rule in drawing lines or measuring; use it only to test the work.
 - (d) Give correct pronunciation of names learned.
 - (e) Have a plan for the work of each day.
 - (f) Pupils are not to learn the definitions of forms, but to know them at sight and name them.
 - (g) Give pupils a great deal of practice on this work, both in drawing and in illustration with lines, pointers, splints, etc.
2. Drawing from objects:—
 - (a) Sphere and spherical bodies.—Globe, apples, balls, oranges, pears, etc.
 - (b) Hemisphere.—Wash-basin, half-apples, oil-can, etc.
 - (c) Cylinder and cylindrical bodies.—Stove-pipe, bottles, measures, ball-bat, etc.
3. Botanical drawing:—
 - (a) Simple leaves classified according to geometric figures—name, base, apex, etc.
 - (b) In connection with drawing teach colors of the spectrum, tint, shade, hue, etc.
4. Drawing from designs:—

See designs on next page.



THIRD GRADE.

READING—Third reader and supplementary reading.	NUMBERS—Completion and review of combinations; fundamental processes.
SPELLING—With reading and all other class exercises.	PHYSIOLOGY—Some instruction regarding accidents.
WRITING—Copy-book according to pupil's ability.	GEOGRAPHY—Oral work continued, passing from local to general geography.
LANGUAGE—Continuation of second grade with special reference to written work.	DRAWING—Continuation of second grade work.

NATURE STUDY.

*(See outline.)**Text-books*—Reader and copy-book.*Apparatus*—Slate, pencil, sponge, rule, pen, ink, and practice paper.

CORRELATION—Combine language with reading, geography with arithmetic, and spelling with all.

READING.

Purpose.—(a) To gather thought. (b) Expression. (c) Word study.

The child's method of thought in third grade differs essentially from that of the first grade, and the teacher's plan of work should expand to fit his enlarged comprehension. In addition to sight-knowing of his own vocabulary, the child should now study many unfamiliar words and learn to comprehend the more complex forms of sentences, such as the inverted order, simple figures of speech, and esthetic conceptions. The child's success in comprehending these will in large degree determine the teacher's success in developing articulation, flexibility, and quality of voice—the requisites of good oral expression.

Require pupils to give substance of the lesson in their own language, sometimes oral, sometimes written.

Give much drill on words difficult to articulate; such as ghosts, mists, rural, thistle, government, etc.

Use, also, sentences like the following:—

1. It is a nice house.
2. The wind bloweth where it listeth.
3. He sells sea-shells; shall she sell sea-shells?
4. The old, cold scold sold a school coal-scuttle.
5. Socks and shoes shock Susan.
6. Some shun sunshine; do you shun sunshine?
7. A shot-silk sash shop.
8. A rural ruler truly rural.
9. I said "a knap-sack strap, not a knap-sack's strap."

Supplementary Reading:—

Give plenty of supplementary reading.—A third reader of another series for sight-reading, stories of history and travel, fables, fairy tales, etc. (See Library List.)

Elementary Sounds:—

Continue the work of previous grades. Teach thoroughly all the diacritical marks as given in Webster's International.

SPELLING.

(See second grade.)

At least half of the work should be written.

Spell all geographical names and names of persons that occur in the reader.

Spell words in classified groups as follows: parts of a house, kitchen utensils, garden vegetables, grains, animals, trees, etc. Also group words ending in *sion*, *tion*, *cion*; *us*, *ous*; *ur*, *ir*, *er*; *ance*, *ants*.

There should be some study of primitive and derivative words. Some of the most common prefixes and suffixes should be learned.

WRITING.

Continue along the same line as in first grade and see that *all* written work is well done; permit no scribbling.

Under some conditions it may be advisable to begin use of copy-book as early as this grade. If so, note remarks under fifth grade.

LANGUAGE.

Purpose.—Same as preceding grades.

Oral Work:—

Incorporate new words of reading lesson into sentences.

Drill upon the use of participial forms of break, catch, do, throw, write. When this work is mastered, teach the adjective.

Teach meaning of the terms singular and plural; uses of sit and set, lie and lay.

Place upon the board such sentences as, It is I; It is we; it is they; Were you there? There are four, etc. Have concert drill on one of these sentences for several days; then introduce another, and so on.

This list should include the correct forms of common incorrect expressions. Drill until the child becomes so accustomed to the harmony of the correct form that the ear demands it.

Written Work:—

Rewrite short sentences, changing singular nouns to plural and plural nouns to singular. Make questions out of these same sentences. Teach the use of the comma in a series.

Give practice in writing:—

(a) Names of persons in full and with initials; (b) names of months.

Teach common abbreviations such as Mr., Mrs., Mich., P. O., Dr., Prof., Gen., Pres., a. m., p. m.; also those of the days and months. Teach the use of the apostrophe as a mark of abbreviation, as in I'm, can't, don't, etc. Give plenty of drill.

Teach the different parts of a letter of friendship; i. e., heading, date, address, signature, and superscription. Begin by having pupils copy the following letter form and reproduce it from memory several times:

LANSING, MICH.
Oct. 12, 1901.

HON. AARON T. BLISS,
SAGINAW, MICH.

Dear Sir,—

Yours respectfully,

J. R. WHITE.

(The usage of capitals and punctuation marks is in a state of transition, there being good authority for writing "Dear sir" with but one capital, and for using either colon or comma after it. However, the above is given as a good form.)

(Addressed Envelope.)

Stamp.	<p><i>Hon. Aaron T. Bliss,</i></p> <p><i>Saginaw,</i></p> <p><i>Mich.</i></p>
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Specimen Phrases (for opening and closing):—

"This is my first attempt at letter-writing, but I'll try to tell you, etc."

"I am very busy with my school work, but would like to give you an account, etc."

"Perhaps you would enjoy a letter from your little niece, etc."

"Yours truly," "Yours respectfully," "Your loving niece," etc.

Outline for Reproduction:—

Let teacher read or tell some story and have pupils reproduce it, both orally and in writing, using an outline similar to this:

1. Story read or told.
2. Imagination—pupils illustrate by pictures.
3. Picture-story—told orally by pupils.
4. Pupils' understanding of *nature* as connected with the story, tested by questioning and broadened by facts given by teacher.
5. Story reproduced in writing.

As the latter part of this grade and the first half of fourth grade is the proper place for the fable, the following are suggested for the above use:—

The Boy who cried "Wolf, wolf!"
 The Hare and the Tortoise.
 The Dog in the Manger.
 The Donkey in the Lion's Skin.
 The Goose that laid the Golden Egg.
 The Thirsty Crow and the Pitcher.
 The Wind and Sun.
 Little Red Riding Hood.
 The Fox and the Grapes.
 The Crane and the Crows.
 The Town Mouse and the Country Mouse.
 The Boys and the Frogs.
 The Lion and the Mouse.

*Suggestions:—*In writing stories (little compositions) require,—

1. Correct form from the first.
2. Subject at the top of slate or paper, half way across the page and underscored.
3. Indentation of first line of each paragraph.
4. Hyphen to show the division of a word at the end of a line.
5. A capital letter at the beginning of each sentence.
6. The proper terminal mark at the close of each sentence.
7. The pupil's name just below and at the right of the production.

(Send samples to the county commissioner from time to time.)

Write narrations and descriptions;—accounts of school life, home life, daily occurrences, etc.

NUMBERS.

Purpose.—(a) Mechanical processes. (b) Comparison of numbers.

Drill on fundamental processes with numbers containing four figures as follows:—

1. Reading and writing of numbers with not more than three periods. Roman numerals to 100.
2. Frequent drill exercises in rapid addition.
3. Subtraction of numbers involving borrowing, at first using only two periods.
4. Problems in division, at first using divisors of only one figure, then of two.

Have pupils use the terms sum, difference, minuend, subtrahend, multiplicand, multiplier, and product.

Review and use tables already learned (U. S. money, liquid and dry measure, linear measure, and time-table), adding the tables for counting and for square measure. In teaching the tables, so far as possible have the *unit of measure* at hand and let the children become familiar with it. Pupils too often find it difficult to remember tables because they mean nothing to them. A child has no conception of a pound

till he has lifted it. A foot rule divided into inches, a yard stick, and many other measures may be readily obtained.

Give thorough review of "combinations" used in second grade, and complete the fraction work begun there. Select and use practical examples such as are met with in business life.

Notation and Numeration:—

In reading numbers do not teach pupils to "begin at the right and numerate" until they reach the left hand figure. Teach the name of the first and second periods, and the third, when pupils can read numbers of *two* periods readily. Take the number 325,132, for instance. Read 325 as if standing alone, then *name* its period. No directions need be given for 132, except to read as if it stood alone, without naming. When other periods are taken up, teach their names, then give these *names* to numbers that stand in them. Do not permit pupils to use "and" in reading whole numbers. Use it only *between* a whole number and its fraction.

A useful device for this work may be called a

NUMBER TRAIN.

Place upon the board a figure like this:—



Then tell pupils to draw similar trains upon their slates and put a figure into each room of the "units car." Bring these to class and drill on reading the numbers thus formed. Follow this with figures in the "thousands car" and so on; but before adding the "millions car," drill on the *writing* as well as the reading of numbers.

Comparison and Analysis:—

Continue the comparison of both whole and fractional quantities.

What part of 8 is 2? 4? 6?

Of 10 is 5? $2\frac{1}{2}$? 1? $\frac{1}{2}$? $\frac{1}{4}$? (How many times can each of these be taken out of 10? Therefore what part?)

What part of a yard is 1 ft.? 2 ft.? $\frac{1}{2}$ ft.? 4 ft.? $\frac{1}{4}$ ft.? $\frac{3}{4}$ ft.?

What part of a dollar is 10c? 5c? 20c? 30c?

Give problems and require solution by comparison as follows:—

If 6 apples cost 5 cents, what will 12 cost? What will 9 cost?

- 1st { Answer—10 cents.
 Analysis. 12 apples is twice 6 apples; therefore 12 apples cost twice 5 cents, or 10 cents.
- 2d { Answer— $7\frac{1}{2}$ cents.
 Analysis. 9 apples is 6 apples plus 3 apples; therefore 9 apples cost 5 cents plus $2\frac{1}{2}$ cents, or $7\frac{1}{2}$ cents.

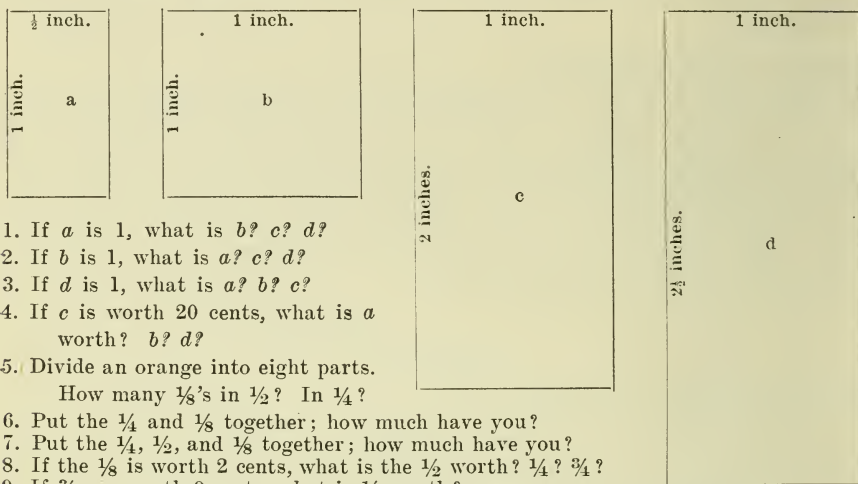
Give many problems similar to the following:

If 7 books cost \$8, what will 21 books cost?

If I can buy 6 pens for 5 cents, how many can I buy for 15 cents?

The ability of third grade pupils to comprehend relations of quantities and values is surprising. Give problems concerning one relation or ratio until pupils see the relation easily and quickly, before introducing another. First give problems involving the ratio of 1 to 2, then 1 to 3, then 1 to 4, etc. Do not at first give abstract questions, but continue to use freely the bundle of sticks to show relation of *units*, the circle and square to show relation of *parts*. Cut some rectangular pieces of card-

board, the smallest one-half inch wide and one inch long. The next one inch square. The next one inch by two inches. The next one by two and one-half inches. Letter them a, b, c, and d. Then question the pupils something as follows:



1. If a is 1, what is b ? c ? d ?
2. If b is 1, what is a ? c ? d ?
3. If d is 1, what is a ? b ? c ?
4. If c is worth 20 cents, what is a worth? b ? d ?
5. Divide an orange into eight parts.
How many $\frac{1}{8}$'s in $\frac{1}{2}$? In $\frac{1}{4}$?
6. Put the $\frac{1}{4}$ and $\frac{1}{8}$ together; how much have you?
7. Put the $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{1}{8}$ together; how much have you?
8. If the $\frac{1}{8}$ is worth 2 cents, what is the $\frac{1}{2}$ worth? $\frac{1}{4}$? $\frac{3}{4}$?
9. If $\frac{3}{8}$ are worth 9 cents, what is $\frac{1}{2}$ worth?
10. If you can buy $\frac{2}{3}$ of an orange for 10 cents, what is an orange worth?

These exercises are simply suggestive. They form the basis, however, for hundreds of questions and months of work. "Make haste slowly," but let no day pass without some questions along these lines. It is an interesting exercise to allow pupils to take the sticks or other material, and make and solve problems suiting the action to the word; e. g., John says, "I had 24 sticks and gave Mary $\frac{1}{3}$ of them (handing them to Mary), Henry $\frac{1}{2}$ of them (handing them to Henry), and had four left." Following this might be some questions; as, What part of 24 is 4? If John has 24 sticks and gives away $\frac{1}{3}$ and $\frac{1}{2}$ of them, how many will he have left? What part of them will he have left?

Give many problems in addition and subtraction of mixed numbers, but no rules: e. g., How many are $1\frac{1}{2}$ pies and $2\frac{1}{2}$ pies? $3\frac{1}{3}$ pies and $2\frac{2}{3}$ pies? $\frac{1}{3}$ pie and $\frac{1}{6}$ pie? $\$5\frac{3}{4}$ and $\$2\frac{1}{2}$?

From these concrete problems go to abstract ones, such as these:

$$\text{Add } \left\{ \begin{array}{r} 2\frac{1}{2} \\ 3\frac{1}{4} \\ \hline \end{array} \right. \quad \begin{array}{r} 3\frac{1}{8} \\ 5\frac{1}{4} \\ \hline \end{array} \quad \begin{array}{r} 8\frac{5}{8} \\ 7\frac{3}{4} \\ \hline \end{array} \quad \text{Subtract } \left\{ \begin{array}{r} 12\frac{1}{2} \\ 5\frac{1}{4} \\ \hline \end{array} \right. \quad \begin{array}{r} 8\frac{1}{4} \\ 2\frac{1}{2} \\ \hline \end{array}$$

These problems should be solved mentally. Have a brief daily exercise for such work.

The basis for decimal fractions can be laid in this grade by the use of toy money. Many problems in compound numbers should also be given.

Aliquot Parts:—

$$\left. \begin{array}{l} \$1 = 100 \text{ cents.} \\ \$\frac{1}{2} = 50 \text{ cents.} \\ \$\frac{1}{4} = 25 \text{ cents.} \\ \$\frac{1}{8} = 12\frac{1}{2} \text{ cents.} \\ \$\frac{1}{16} = 6\frac{1}{4} \text{ cents.} \end{array} \right\} \text{ From this teach } \left\{ \begin{array}{l} \text{The whole of anything} = 100 \% \\ \frac{1}{2} \text{ of anything} = 50 \% \\ \frac{1}{4} \text{ of anything} = 25 \% \\ \frac{1}{8} \text{ of anything} = 12\frac{1}{2} \% \\ \frac{1}{16} \text{ of anything} = 6\frac{1}{4} \% \end{array} \right.$$

Teach next,—

$$\left. \begin{array}{l} \$\frac{1}{5} = 20 \text{ cents.} \\ \$\frac{1}{10} = 10 \text{ cents.} \\ \$\frac{1}{20} = 5 \text{ cents.} \end{array} \right\} \text{ From this teach } \left\{ \begin{array}{l} \frac{1}{5} \text{ of anything} = 20 \% \\ \frac{1}{10} \text{ of anything} = 10 \% \\ \frac{1}{20} \text{ of anything} = 5 \% \end{array} \right.$$

— Discriminate carefully between 100 cents and 100 %.

When the above aliquot parts are thoroughly understood and memorized by plenty of drill, teach thirds and sixths.

PHYSIOLOGY.

In teaching this subject only common names should be used. The work should all be oral and simple until pupils reach the fifth grade, then a book should be used. This oral teaching should be done in connection with the reading and language, and should be conducted in a conversational manner, the teacher asking questions, the pupils answering and telling their little stories.

Childhood:—

1. A child's helpless condition.
2. Who took care of him and preserved his health?
Mother, father, grand-parents.
3. Dangers to the body.
Fire, some playthings, poisons, etc.
4. General care of the body.
Feeding, bathing, and clothing.

Our Bodies:—

1. What they do,—
Think, talk, move, rest, sleep, eat, drink, breathe.
2. Parts,—
Head—crown, back, sides, hair, ears, face (forehead, temples, cheeks, chin, eyes, brows, lids, lashes, nose, mouth, lips).
3. Divisions—head, trunk, limbs.
 1. Head.—A bony box called the skull.
Show what it contains and how the brain is the seat of thought.
Teach preservation of the teeth.
 2. Trunk.—Chest and abdomen.
Give simple description of the chest,—its position, how it is made, and the organs it contains.
Teach pupils to observe the general action and use of organs, and their proper care.
 3. Limbs:—
Formation of bones and joints—peculiar adaptability to use. (Compare with bones of animals.)
Action of muscles.

Suggestions:—

1. Note common habits that are injurious to the throat, lungs, and stomach. Teach the special need of good ventilation in sleeping rooms; give breathing exercises.—See Appendix.
2. Give some simple directions to be followed in case of apparent death by drowning; such as, loosen the clothing about the neck, jerk the patient up by the heels, etc. In the same way treat of simple remedies for burns, bruises, etc.; show what should be done in case of a severed artery or vein.

Stimulants and Narcotics:—

Describe the effect of alcohol and tobacco upon the various vital organs. Note especially how their use blunts the moral sense and renders one incapable of right action. Show that tobacco injures the youth more than the adult. Explain poisonous nature of the cigaret.

See Appendix, "Suggestive Oral Lessons" Nos. 4-10, inclusive.

GEOGRAPHY.

Purpose.—(a) To stimulate both observation and imagination. (b) To gain information.

Natural features.—If a river, creek or pond is near by, teach right bank, left bank, current, bed, island, peninsula, cape, bay, waterfall, source, branches.

Map-drawing:—

1. Draw school ground to scale of one inch to the yard or rod.
Teach difference between a map and a picture.
2. The township—scale one inch to the mile.
3. The county—scale one-fourth inch to the mile.
4. The state—scale suited to drawing space.

The state idea should be developed from idea of county by teaching the number of counties in the state and showing the insignificance of each compared to the whole state.

Indicate upon the map the mineral, lumber, and agricultural districts, also the principal rivers.

Teach names of townships in county and direction on the map. If convenient, have pupils at first face the north. This brings the points of compass “right hand east, left hand west.”

With ball or globe illustrate change of seasons, eclipse and changes of the moon.

Use apple or ball to illustrate shape of the earth. day and night (use lamp or candle at night or sunshine during the day, and note the illuminated and the dark portions as you revolve it). Show how the sun gets back to the east every morning. A day and night of twenty-four hours is a natural day; from midnight to midnight a civil, or legal day.

In studying physical features teach by actual observation, illustrating by pictures, drawings, and molding board. Teach level, slope; plain, prairie; swamp, marsh; hill, mountain; cape, peninsula, isthmus.

Take class, if possible, to pond or stream to teach natural features.

Under productions, teach that land produces plants, animals, minerals. Water produces fish, sponges, etc.

Winds:—

Direction, temperature (daily record), effects—heat, cold.

Moisture:—

Dew, fog, mist, rain, frost, hail, snow, ice.

Soils:—

Procure some rock, clay, sand, loam, and muck, suited to the following products: wheat, corn, oats, hay, potatoes, celery, onions, and fruits. Bring soils in boxes, plant proper seeds and watch their germination.

Suggestive Outlines:—

Sugar	{	Where produced in the United States.
		Plantations.
		How prepared for use.
		Uses.

Coffee	{	Where grown.
		Tree. (a) Fruit.* (b) Seeds.
		Cultivation.
		Preparation.
		Impurities.
		Uses.

{ Effects on the system, enlarging on the injurious effects upon the young.

NATURE STUDY.

Continue study of previous years, making work more comprehensive.

Atmosphere:—

1. Clouds, temperature (using thermometer)—Why does the mercury rise?
2. Winds—why they blow; benefits to man, injuries to man.

Animals:—

1. Appearance, habits, uses to man.
2. The earth-worm—its food, value to man. Compare with snail as to food, protection, and locomotion.

Plants:—

1. Trees—kinds of wood; uses and how prepared for use.
2. Shrubs—their difference; annuals—producing seeds only; biennials—storing nourishment. Twigs on different sides of trees, different color of leaves on different parts of trees, etc.

DRAWING.

Drawing from Objects and Designs:—

1. Teach type-forms from that already taught.
2. Spheroids and similar forms. Use eggs and curves applied to graceful forms of vases, over-lapping coins, solid rings, etc.
3. Compound curves—curves applied to forms from nature.

Color:—

Review the six positives of the spectrum. Arrange the twelve intermediate hues with reference to the six positives, grouping each positive with its two hues. They are as follows: violet-red, orange-red; red-orange, yellow-orange; orange-yellow, green-yellow; yellow-green, blue-green; green-blue, violet-blue; blue-violet, red-violet.

Botanical Drawing:—

Continue the drawing of leaf and flower; base, apex, margin.

Paper Folding:—

Teach pupils to fold paper to represent angles and plane figures; triangle, square, circle, etc.

Review principles learned in preceding grades, letting pupils make original designs, using both curved and straight lines.

Teachers should also dictate new designs, using both kinds of lines.

(For designs, see fourth grade.)

FOURTH GRADE.

READING—Third reader (different series from third grade) and supplementary reading.	ARITHMETIC—First book. Elementary.
SPELLING—With reading and other class exercises.	PHYSIOLOGY—More comprehensive work along previous lines with some instruction regarding the special senses.
WRITING—Copy-book—according to pupil's handwriting.	GEOGRAPHY—Study of the earth as the habitation of man, using first text-book the latter half of year.
LANGUAGE—Oral, book as a guide.	DRAWING—More varied use of curved lines with the addition of pictorial drawing.

NATURE STUDY AND SCIENCE.

Text-books—Reader, language book, arithmetic, geography, and copy-book.

Apparatus—Slate, pencil, sponge, pen, ink, and practice paper.

CORRELATION—In general, combine *all* the work of this grade. In particular, combine language with reading and drawing with geography.

READING.

Purpose.—The same as in third grade.

Continue third grade methods, giving special attention to *exact* meaning. Change words, punctuation, and emphasis, then let pupils state the changes made in shade of thought.

Teach pupils *how to use* the dictionary, and as far as possible have each own a small copy. Assign a word each day for study with reference to pronunciation, spelling, derivation, and meaning. Weave this into the pupil's vocabulary by having him use it not only once, but several times. Review each Friday, testing the pupil's ability to use in conversation and writing, the words learned during the week. The avidity with which pupils do such work, shows how much they appreciate their extended horizon.

Reading and language should be welded in this year.

Supplementary Reading:—

This should include myths, American history stories, poems of nature, of patriotism, and of moral sentiment. (See Library List.)

Elementary Sounds:—

Familiarize pupils with *all* the diacritical marks. Have daily marking of words until pupils are proficient.

SPELLING.

Same as second and third grades. Increase the amount of written and diminish the amount of oral spelling. If the reader used is not fitted for spelling exercises, a speller may well be introduced in this grade.

WRITING.

(See third grade.)

LANGUAGE.

Purpose.—To clarify and fasten the language work of first three grades and pave the way for text-book work.

Oral Work:—

Review past work.

Teach the four forms of nouns, as—

Child, children;

Child's, children's.

Give sentences containing such phrases as, of the child, of the ship, of the boys, etc., having pupils change to possessive forms of nouns.

Teach the verb and adverb, giving lists of adverbs to be used in sentences.

Drill on use of who, whom, and which. Do not enter into reasons for their use, but by drill in sentences train the ear to demand the correct form as heretofore suggested. Expand simple sentences by the use of who, which, what; contract complex sentences to simple ones.

Distinguish uses of the following words: between and among; carry, bring, and fetch; learn and teach; stop and stay; mad and vexed; like and love; have and get; awful and very; guess and think.

Teach new synonyms and common homonyms; as, vane and vein; hue and hew; right and write; done and dun; hail and hale, etc.

Teach use of ought and ought not.

Written Work:—

Continue the dictation exercises and story writing of the previous grade, and cultivate the imagination by a reproduction of the history and geography stories, including tales of travel.

While the paraphrasing of poetry is not to be commended, it is often well to have a pupil tell or write in his own words the story of some narrative poem. In addition to this work, drill on the use of such words as have been studied in the reading class.

Continue letter writing with special reference to business correspondence. In this connection teach additional phrases for introduction and close; as, "Yours of the 11th inst. is just received." "I am in receipt of yours of the 8th inst." "Your letter of last week has remained unanswered," etc.

"Very truly yours," "Very respectfully yours," "Yours cordially," "Yours affectionately," "As ever, your friend," etc.

Introduce street number in heading and on envelope.

ARITHMETIC.

This Manual contemplates two books on this subject. The first is now put into the hands of the pupils. If the work of previous grades as outlined has been thoroughly mastered in this grade, pupils will complete the book without trouble.

FALL TERM.—This term (ordinarily from two and one-half to three months) should cover the following:

Notation and Numeration:—

The study of these should aim at rapidity, so that pupils write or read without hesitation numbers of four periods, knowing the names of these periods and the orders in the periods. Give frequent practice in reading and writing numbers.

Addition and Subtraction:—

This will consume but little time, for pupils have had much drill in previous grades. Allow no counting on fingers or by marks. Aim at speed and accuracy.

Multiplication and Division:—

This work should complete all the drill that should ever be necessary for pupils. Give enough examples to secure accuracy and rapidity. Remember to test *thoroughly* the pupils' knowledge of multiplication tables. If they show any forgetfulness of these tables, review them daily in connection with the other work.

Long Division:—

This demands patient and persistent drill. Too often pupils make slow progress because they obtain the successive quotient figures from the answers of the book. Here, as elsewhere, give examples outside the book. Teach pupils to notice and compare each partial product with the partial dividend from which is to be subtracted. After the subtraction is made, let the remainder in like manner be compared with the divisor.

Scheme for Division.—Place upon the board the following form for pupils to memorize and apply as below:

$$\begin{array}{r}
 \text{X} \\
 \hline
 8 \overline{) 253648} \quad \overline{) 32331} \\
 \underline{24} \qquad \qquad \underline{8} \\
 18 \qquad \qquad 253648 \\
 \underline{16} \qquad \qquad \qquad \\
 26 \\
 \underline{24} \\
 2 \\
 \underline{2} \\
 8 \\
 \underline{8} \\
 0
 \end{array}
 \left. \vphantom{\begin{array}{r} 8 \overline{) 253648} \end{array}} \right\} \text{Proof}$$

1. { See how many times 8 is contained in 25.
 { Three times.
2. { Multiply.
 { $3 \times 8 = 24$.
3. { See if 24 can be taken from 25.
 { It can.
4. { Subtract.
 { $25 - 24 = 1$.
5. { See if 1 is less than 8.
 { It is.
6. Bring down next figure.

Introduce this by working upon the board several examples, letting the class give directions as you work. After the above is fully understood, have pupils give explanations daily, using above form. *Prove* every example.

When large divisors are used, the following device for finding quotient figure may be helpful:—

	15 325,425 21,695
	30
	25
	15
	104
	90
	142
	135
	75
	75
$\left\{ \begin{array}{l} 15 \times 1 = 15 \\ 15 \times 2 = 30 \\ 15 \times 3 = 45 \\ 15 \times 4 = 60 \\ 15 \times 5 = 75 \\ 15 \times 6 = 90 \\ 15 \times 7 = 105 \\ 15 \times 8 = 120 \\ 15 \times 9 = 135 \end{array} \right\}$	

By comparing the table of products with each partial dividend, the pupil sees immediately what to write for the quotient figure. His multiplications are already made, so that no time is lost. Moreover, this gives constant review in the products of digits, but the teacher should soon lead pupils to discover the quotient figure by inspection, and not permit too much use of the above device.

WINTER TERM.—The work of the winter term (usually four months), should cover the following:

Factoring:—

Make the distinction between prime and composite absolutely clear. Resolve numbers into composite, then prime factors. Have pupils name and write the prime factors of numbers to 100, and drill until no mistakes are made in recognizing them instantly. A simple and easy plan is to separate a given number into two large factors, readily perceived, and treat these similarly. Thus: $72 = 9 \times 8$; $9 = 3 \times 3$, and $8 = 2 \times 2 \times 2$. Then, $72 = 3 \times 3 \times 2 \times 2 \times 2$. Review thoroughly aliquot parts of 100. This will be of great service to pupils in many parts of their subsequent work.

Fractions:—

Addition, subtraction, multiplication, and division. This work cannot be done too thoroughly. Give much drill on reduction of mixed numbers to improper fractions and the reverse.

Continue teaching relations of quantity and number; e. g.,

1. What is the relation of 4 to 12? Ans., $\frac{1}{3}$ (read $\frac{1}{3}$ of 4) or $\frac{1}{3}$.

What is the relation of 6 apples to 18 apples? 12 oranges to 6 oranges? 8 books to 2 books? 5 books to 8 books? 9 to 12? 7 to 12?

2. Introduce cancellation; e. g., if 8 books cost 16c, what will 5 books cost?

$$\text{Stated: } \frac{5 \cdot \cancel{16}^2}{\cancel{8}} = 10.$$

3. If $\frac{3}{4}$ of a ton of hay costs \$12, what will $\frac{1}{4}$ of a ton cost? 1 ton? $2\frac{1}{2}$ tons?

$$\text{Stated: (a) } \frac{\$12}{3} \text{ (read } \frac{1}{3} \text{ of } \$12).$$

$$\text{Stated and solved: (b) } \frac{\$12 \cdot \cancel{4}^2 \cdot \cancel{2}}{\cancel{8} \cdot \cancel{2}} = \$40.$$

4. $\frac{2}{3}$ of a gallon of oil costs 10c. What will $5\frac{2}{3}$ gallons cost?

5. 4 acres of land cost \$220. What is the cost of 5 acres? 6 acres? 8 acres?

(Note the relation of 4 to 5, 4 to 6, 4 to 8.)

6. What is the relation of $\frac{1}{3}$ to $\frac{1}{4}$? Of $\frac{2}{3}$ to $\frac{5}{6}$?
 7. If $\frac{2}{3}$ of a lb of tea costs 20c, what will $\frac{1}{6}$ of a lb cost?

Do not give a *few* of these problems, but many, until certain that pupils understand the principles so well that they will not be forgotten. Repetition is the teacher's branding iron.

In working problems many pupils are uncertain whether to multiply or divide, and the following device may be useful:—

Problems.—

1. If 40 horses cost \$1000, what will 1 horse cost?
2. At \$25 each, how many horses can be bought for \$1000?
3. At \$25 each, what cost 40 horses?
4. If $\frac{3}{4}$ of a bbl. of sugar costs \$12, what cost 1 bbl.?
5. At \$16 a bbl., how much sugar can be bought for \$12?
6. At \$16 a bbl., what costs $\frac{3}{4}$ of a bbl.?

Device.

No.	Cost of all.	Cost of 1.	Number bought.
1	1000	?	40
2	1000	25	?
3	?	25	40
4	12	?	$\frac{3}{4}$
5	12	16	?
6	?	16	$\frac{3}{4}$

Note that the cost of all, when given, is *always divided*, while the other two, if given, are *always multiplied*.

Give several lessons in which pupils simply place the numbers in the proper columns. This will help pupils to *read* problems more carefully. After the numbers are properly placed, let the pupil bring down the proper sign between the numbers.

SPRING TERM.—Completion and review of common and decimal fractions.

NOTE.—If at the close of this term pupils can add, subtract, multiply, and divide whole numbers, fractions with denominators not greater than 20 or 30, and handle with comparative certainty ordinary decimals, they should begin the second book in the fall term.

Make sure of this work before going any further in the book. It is seldom that the fourth grade class ought to complete the work of the first book in arithmetic. Percentage, measurements, and compound numbers belong to higher grade work and have no place in the first book in arithmetic designed for fourth grade pupils.

Much of the difficulty in teaching arithmetic is because of the immaturity of the pupils. When *any* lower grade work seems to be too hard for pupils, the *wise* teacher will find *easier* work for them, and be content to wait for the development of the child's powers. This applies to good teaching in all lower grade work.

In decimals there is nothing new to learn except placing the decimal point. Give this special attention.

Suggestion.—Send class to the board and dictate examples in multiplication; as "Multiply 12.568 by 2.6769. How many places to point off in the product?" Do not wait for pupils to perform the operation, but simply to discover the number of places to point off.

In division teach to *place the point when the proper quotient figure is found*.

Device.—

Hook together the right-hand figure of the divisor and the corresponding figure of the dividend, placing decimal point in the quotient when *that* dividend figure is brought down and divided; e. g.:

(a) Divide 25.6845 by .33.

$$\begin{array}{r} \text{Operation.—} \quad .33 \overline{) 25.6845} \mid 77. + \\ \underline{231} \\ 258 \\ \underline{231} \\ \hline \end{array}$$

(b) Divide 35 by .003.

$$\begin{array}{r} \text{Operation.—} \quad .003 \overline{) 35.000} \\ \underline{11666.} + \end{array}$$

(c) Reduce $\frac{1}{16}$ to a decimal.

$$\begin{array}{r} \text{Operation.—} \quad 16. \overline{) 1.00} \mid 0. + \end{array}$$

Explanation,—

16 is contained in 1 no times; place point, etc.

When pupils are working decimals, they should place a decimal point after *every whole number* that they write.

By these simple devices pupils will in two or three days learn to point off accurately.

Teach them the principle, "Division of numbers with like denominators gives whole numbers for quotients."

In all work insist upon correct form. If the sum of 25 and 15 is to be multiplied by 12, do not allow the work to be indicated thus: $25 + 15 = 40 \times 12 = 480$. Insist upon a *separate* line for each operation; as,—

$$\begin{array}{r} 25 + 15 = 40 \\ 40 \times 12 = 480 \end{array}$$

PHYSIOLOGY AND HYGIENE.

NOTE.—This work should be oral.

Review rapidly the work of the second grade and more carefully the work of the third. Teach the following:—

1. General outline of the location and character of the brain and nerves.
2. General outline of digestion; show some of the changes that take place in the food, and how the digested food enters the blood.
3. Explain the heart and give a general outline of the circulation.
4. Explain in a simple way the functions of the lungs and diaphragm; the movements and purpose of respiration—consequent necessity of pure air.
5. In each of the above show the effects of alcohol, tobacco, and other narcotics.
6. In a limited way, teach the eye and ear, giving directions for their care.

Suggestions:—

1. Note the use of all the external parts of the eye.
2. Teach that hearing is often impaired by throat trouble, hence the necessity of avoiding wet feet or other exposure, on this account as well as for general health. Give directions regarding the removal of a foreign body from the ear.
3. Point out the knowledge gained through each of the special senses, and show that taste and smell are not for pleasure alone. Teach that condiments and peppery substances, alcohol and tobacco, impair the delicacy of taste.
4. Show that we learn the shape of things by touch, not sight; teach care of the nails as a protection to the delicate finger-tips.
5. Teach care of the nose and the importance of breathing with the mouth closed.

(See Appendix, "Suggestive Oral Lessons," Nos. 11 and 12.)

GEOGRAPHY.

Purpose.—(a) To enlarge the child's idea of the earth as a whole. (b) To develop his knowledge of commercial life.

With globe and maps teach rotation of the earth on its axis, sunrise and sunset, difference of climate and of products, ocean routes, continental water-ways, and other natural routes of travel. Supplement by five-minute outline maps drawn daily by pupils. Gradually add mountains, rivers, lakes, cities, trunk railway lines, etc.

This work should enable pupils to read maps at sight; i. e., the direction of rivers will help him to image the ordinary slopes: the mountains to image the steep slopes, rapid rivers, waterfalls, water-powers, and manufacturing districts.

In the same way the water-ways to the sea should suggest the commercial idea (exports, imports) and the consequent location of cities.

During this year the pupil should do the following:

Draw a township map, and a county map.

Township.—Size, boundary. (Scale one inch to the mile)—

- (a) Divide into school districts, locating the schoolhouses.
- (b) Name townships bordering.
- (c) Name rivers, lakes, hills, islands.
- (d) Productions:—
 1. For home use.
 2. For sale.
 3. Purchased in exchange—exports, imports.
- (e) Manufactures:—
 1. Raw material—Where obtained? How?
 2. Finished articles—Use. How handled. Where sold. Price.
- (f) Means of communication—roads, railroads.
- (g) Important men and women of township.
- (h) Duties and election of township officers.
- (i) History of township.

County.—Size. (Scale one-fourth inch to the mile.)—

- (a) Name and boundary.
- (b) Names of townships, villages, postoffices.
- (c) Draw, locating county seat, (why so called), villages, postoffices, rivers, lakes, railroads.
- (d) Names of rivers and lakes. Do rivers furnish water power? Explain springs and source of river. How hills were formed. The effect of the "washing" of rivers.
- (e) Follow same outline as for township.
- (f) County officers, duties, terms of office.
- (g) Have pupils write letters describing district, township, county.

NOTE.—All this teaching should be done as far as possible with home-made maps. Remember that a child's like or dislike of a study depends mainly upon a teacher's success in language and object lessons. A skillful teacher in these lessons will awaken in the child a love of nature and a desire to read and to travel.

They should learn the following:

1. The Earth:—
 - (a) Divisions of land.
 - (b) Zones and climate.
 - (c) Races of men.
2. The Atmosphere:—
 - (a) Winds.
 - (b) Clouds.
 - (c) Moisture.
3. The Water:—
 - (a) Springs, lakes, rivers.
 - (b) Oceans and ocean currents.

We suggest for reading the following books:

Seven Little Sisters—Ginn & Co., Boston.
 Nature Stories—Ginn & Co., Boston.
 Seed Babies—Ginn & Co., Boston.
 World Reader, Nos. 1 and 2—Ginn & Co., Boston.
 Each and All—Ginn & Co., Boston.
 All the Year Round—Ginn & Co., Boston.
 Little Nature Stories—Ginn & Co., Boston.
 Nature's Byways—Morse Co., Boston.
 Geography for Young Folks—Educational Pub. Co., New York.
 Little Flower Folks—Educational Pub. Co., New York.
 Stories from Garden and Field—Educational Pub. Co., New York.
 Stories of Industry—Educational Pub. Co., New York.
 The Plant Baby and its Friend—Silver, Burdette & Co., Chicago.
 Nature in Verse (very suggestive)—Silver, Burdette & Co., Chicago.
 Madam How and Lady Why—Macmillan Co., New York.
 Seaside and Wayside—D. C. Heath & Co., Chicago.
 Friends in Feathers and Fur—Am. Book Co., Chicago.
 Familiar Animals and Their Wild Kindred—Am. Book Co., Chicago.
 Nelson's Science Reader—A. Flanagan, Chicago.

SCIENCE AND NATURE STUDY.

Atmosphere:—

1. Wind-belts, rain-belts.
2. Science,—
 - Why moisture is dew, fog, rain, hail, snow.
 - What frost is, how dew falls.
 - Why we sometimes see the breath; why the pitcher sweats, and other phenomena based upon the same principle.
 - (In all this work, dwell upon the *use to man*.)

Animals:—

- Birds:—
- Parts—head, body, wings, legs.
 - Nests—kinds and places.
 - Food—manner of procuring,—birds of prey, climbers, scratchers, waders, swimmers, and divers.

Plants:—

1. Seeds—shape, hard or soft, shell, wings, distribution, etc.
2. Flowers—season, form, parts.

DRAWING.

Purpose.—The same as in preceding grades.

Drawing from Objects:—

Continue spherical forms; use potato, tomato, dumb-bell, door-knob, etc. Develop cone from pyramid.

Botanical Drawing:—

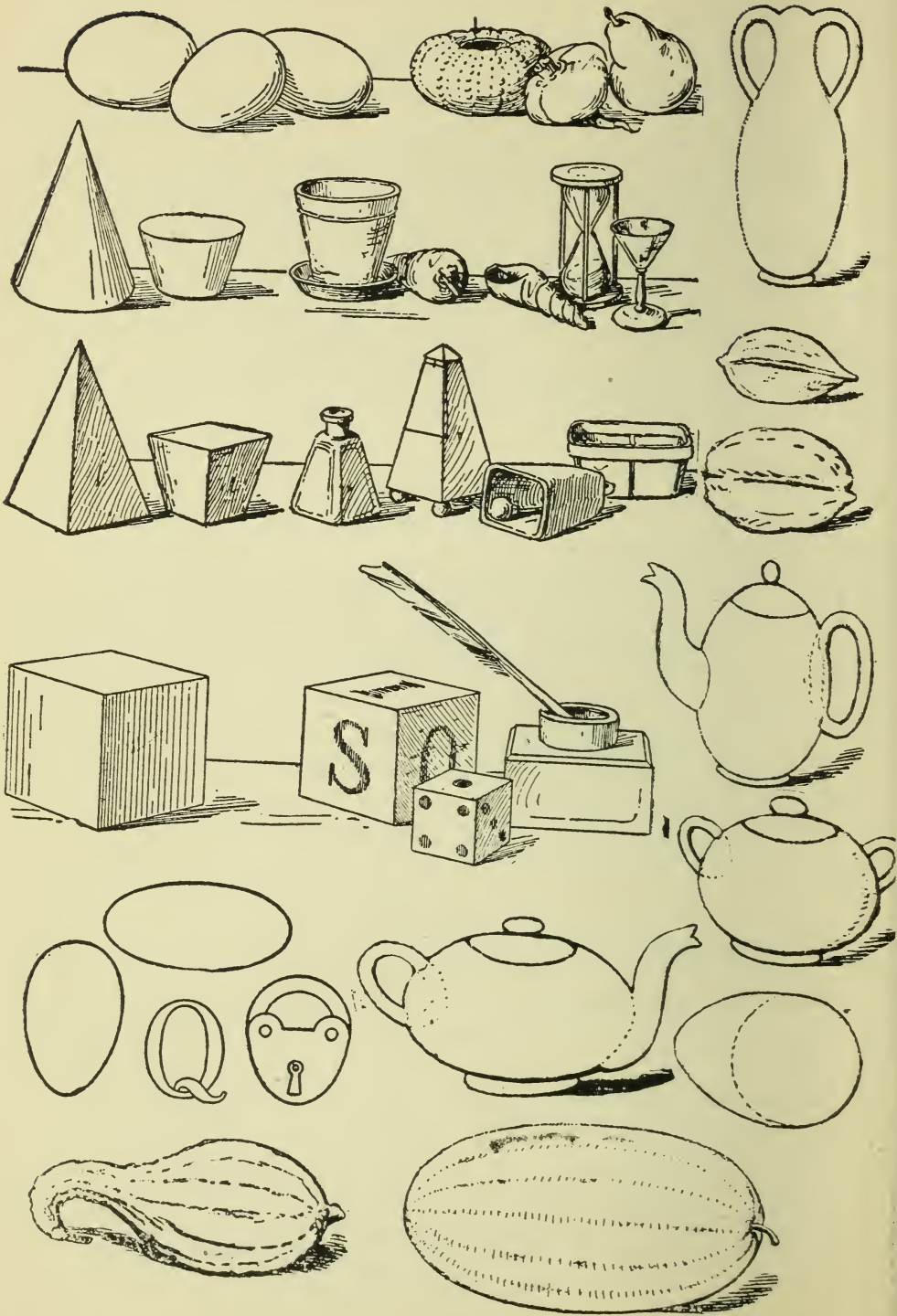
Continue work of previous grades.

Pictorial Drawing:—

Teach plane, field of vision, center of vision, eye-level; proportion of lines one to another; accurate measurement of lines and distances,—bisection, trisection, quadrisection; estimation of various kinds of angles.

Continue color study, introducing shades,—warm, cool; harmony, contrast.

(See designs on next page.)





FIFTH GRADE.

READING—Fourth reader.

ARITHMETIC—Second book to decimals.

SPELLING—First use of book.

PHYSIOLOGY AND HYGIENE—Oral.

PENMANSHIP—Copy-book according to pupil's handwriting.

GEOGRAPHY—First book.

LANGUAGE—Preparation for technical grammar. DRAWING—Development of creative faculty.

NATURE STUDY AND SCIENCE.

Text-books—In all branches.

Apparatus—Slate, pencil, sponge, pen, ink, and practice paper.

CORRELATION—In the primary work correlation begins by uniting the work of reading, first with language, then with numbers, etc., until in the fourth grade the whole work becomes a unit. In this grade and succeeding ones care should be taken that, in each subject taught, the threads reaching to other subjects be woven together so that the pupil's knowledge shall be like a cable with no strands swinging loosely about, but with each one helping to give strength and symmetry to all.

In physiology fifth and sixth grades should do the same work, reciting but twice each week if school is large, alternating with grammar and geography. Special attention should be given to hygiene, ventilation, and narcotics.

ARITHMETIC.—Teachers should use judgment in the work in this subject. The ordinary second book in arithmetic is a *complete* arithmetic, while the pupils begin it in the fifth grade. As a result much of the work is too hard and should be omitted. In the fifth and sixth grades, omit difficult problems, complicated explanations, and impractical subjects.

In all grades, up to and including the eighth, omit the following: Duodecimals, true remainder, greatest common divisor, bank discount—except finding the proceeds, equation of payments, alligation except averaging, custom house business, stocks, and the progressions.

Emphasize the occupations, interest, partial payments (U. S. rule), trade discount; measuring lumber, grain in bins, hay in the stack or mow, and wood of stove length.

Ninth grade pupils, however, should review arithmetic with lower grades and *they* should work *all difficult problems, master all explanations*, and might take the omitted subjects mentioned above.

Teach pupils to use "checks" in their work, especially should they from this grade on be accustomed to reading a problem and *estimating the answer*; e. g., "What will 256 yds. of cloth cost at 97½ cents a yd.?" The pupil should see at once that as each yard costs a little less than one dollar, the whole will cost a little less than 25 dollars. This will prevent pupils giving ridiculous answers.

Again, "What will 200.75 cords of wood cost at \$1.05 per cord?" A glance will suffice to show that as the cost per cord is a little more than one dollar, the whole cost will be a little more than \$200.

We wish to *emphasize* the value of this kind of work, and teachers who have not tried it will be astonished at the facility with which pupils apply the idea. Not only will they apply it to arithmetic, but they will soon learn to read *through the lines*, especially in history, geography, and physiology.

READING.

Purpose.—(a) To perfect oral expression. (b) To cultivate a taste for good literature.

Up to this time the main object has been to teach to read, but the work of the fifth grade should be more comprehensive and assume more of a literary character. Study carefully all the selections in the reader, noting important historical and rhetorical allusions. Choice selections should be memorized.

Supplementary Reading:—

The work suggested in the fourth grade should be continued, adding biography of great Americans.

Noted authors may be studied in a limited way; when, where, and how they lived. If possible, some of their important works should be discussed.

A fourth reader of an unfamiliar series may be profitably used for sight reading.

(See library list.)

(NOTE.—Pupils should be encouraged to make free use of the dictionary. For convenience have a "dictionary shelf" from which the book is seldom taken, but to which pupils may go without special permission.)

SPELLING.

If not already introduced, a speller should now be used. No one method can be said to be the only one, but from this point the teaching of spelling involves more than the mere conning of letters. It is of little value that pupils spell words which they cannot use. Hence, *use* of words in sentences should form one of the important parts of the work. Their meaning, derivation, and growth should also receive attention. It is not to be understood from this that every new word should be thus studied, but enough such work should be done to give pupils a taste for it.

Another and very important result from such study as secures accurate spelling is the resulting mental discipline. Accuracy signifies power of concentration,—the power that distinguishes the scholar.

Method:—

Most of the spelling should be written. Oral spelling may be used about twice a week for review and drills in pronunciation and articulation. In such work insist that every word be correctly pronounced and clearly enunciated. Indeed, make this a feature of all oral spelling. If this is difficult, pupils should for a time be required to pronounce each syllable. The teacher should be sure of her own pronunciation. She should never distort a word to assist in its spelling. Words should be pronounced but once and but one trial be allowed. *Make this rule invariable.*

When possible, either give the word in a sentence or have pupils do so.

Give special drill upon hard words and the pronunciation of those ordinarily mispronounced.

Devices:—

1. Have pupils form other words from a given word or sentence.
2. Pronounce the singular, having pupils spell the plural and possessive.
3. Place upon each pupil's desk a five-point star, and each Friday mark upon one point the number of words missed by pupil during the week. Whenever the points are filled with ciphers, showing no words missed for five weeks, give the pupil a badge to wear as a "star speller" until he misses a word, when another star is commenced.
4. Keep exact record of words missed each month and send to commissioner the names, ages, grade, and number of words missed by each pupil.
5. Have occasional spelling-down contests.

These are a few of the many devices that may be used to create an interest in this subject.

Finally, *never* be impatient with the poor speller, but encourage by showing him *how* to study spelling.

LANGUAGE.

Do not yet make use of formal definitions, but such as are taught should be thoroughly learned.

Continue the work of the preceding years, emphasizing written exercises.

Reproduce in writing memorized literary gems.

Teach the business forms for ordinary receipted bills, receipts for money, and promissory notes.

Drill upon the marks of punctuation already taught and call attention to the simpler uses of semicolon.

Distinguish between the uses of the following: bad, evil, ill; couple, several, few; faded, withered; little, small; fresh, new; funny, strange; cunning, tiny; bad, badly.

A language book might be used during the spring term.

ARITHMETIC.

If the suggestions for the previous years have been followed, there will be little trouble in the work of the second book in arithmetic. Systematic analysis should be taught in this year and carried through the succeeding years. Previous work has dealt largely with the "how;" let it now include the "why" also.

In this work there should be close attention to statement and logic. Allow no loose statements for such problems as, If one orange costs 5c, how many can I buy for 25c? Do not allow pupils to say, "Since one orange costs 5c, I can buy as many for 25c as 5c is contained times in 25c, or as many as $25c \div 5c$." This is *not* a logical statement. The statement should be, "Since 5c will buy one orange, 25c will buy, etc."

Guard also against the following common errors: 3 cents times 5; 12 feet length \times 4 ft. width = 48 square ft.; $\$25 \div 5$ days = \$5 a day.

Attention is called to the following extract from the Report of Committee of Fifteen, regarding mental arithmetic:—

"Your committee is of the opinion that the so-called mental arithmetic should be made to alternate with written arithmetic for two years, and that there should not be two daily lessons in this subject."

FALL TERM:—

Fundamental operations, definitions, and rules. Factoring, common divisor, greatest common divisor; multiples, common multiple, least common multiple.

Throughout fractions, and in many other subjects, *cancellation* is of great importance and should be much used.

WINTER TERM:—

Fractions,—reduction, addition, subtraction, multiplication, and division.

Lead pupils to see that the value of a fraction varies with operations performed upon numerator or denominator as does the quotient with like operations upon dividend and divisor. Pupils should reduce by inspection any fractions whose common denominator does not exceed 150 or 200. Teach business methods of handling fractions. In addition or subtraction *never* allow pupils to reduce mixed numbers to improper fractions. In multiplying together whole or mixed numbers with small denominators, seldom reduce to improper fractions, but try this form:

$$\begin{array}{r}
 25\frac{1}{2} \\
 12\frac{2}{3} \quad \cdot \\
 \hline
 \frac{2}{3} \times 25 = 16\frac{2}{3} \\
 \frac{2}{3} \times \frac{1}{2} = \frac{1}{3} \\
 12 \times 25\frac{1}{2} = 306 \\
 \hline
 12\frac{2}{3} \times 25\frac{1}{2} = 323
 \end{array}$$

This is not difficult when pupils are taught that the expression $12\frac{2}{3}$ times $25\frac{1}{2}$, means $25\frac{1}{2}$ taken $12\frac{2}{3}$ times.

SPRING TERM:—

During a part of this term use problems that give practice in articles of commerce bought and sold by the hundred-weight, by the thousand and the ton: such as beef, pork, lumber, shingles, hay, etc. For the remaining part of the term, review fractions and apply them to practical problems.

GEOGRAPHY.

In taking up the text-book do not let its use divert the attention from the central thought of geography study—the earth as a habitation for man.

Pay special attention to the following:

1. Map drawing continued, giving attention to physical features and detail.

2. Coast lines { Advantages to man.
Disadvantages to man.

3. Drainage { Atlantic system.
Pacific system.

4. Man's struggle:—

(a) For subsistence { Food.
Shelter.
Clothing.
Fuel.

(b) For transportation { Ships.
Steamboats.
Bridges.
Tunnels.
Railways.

5. Man's reward { The home.
Travel.
Education.
Commerce.
Cities.
Society.

Suggestion.—Make continual use of the imaging faculty. When a description is read, have pupils image the picture. Make the mile a measure of distances below one hundred miles. The church steeple or flag pole a measure of distances in feet, etc.

SCIENCE AND NATURE STUDY.

In the study of plants and animals, give more attention to types and comparative study.

Atmosphere:—

1. Weight—illustrations.
2. Value to man,—
 - (a) To purify the blood.
 - (b) To carry rain clouds.
 - (c) To dry clothes, etc.
3. Science,—
 - (a) Why a ball floats.
 - (b) Why the pump raises the water.
 - (c) Why the barometer falls or rises.
 - (d) Why we can see in a shadow, etc.

Animals:—

1. Those that store food and those that do not.
2. Coverings—changes in covering for different seasons; value of wool, fur, skins, and shells in commercial life.

Plants:—

1. Buds as wholes—position, arrangement, size, form, color.
2. Leaves in bud—position, arrangement, etc.
3. Flowers—position, arrangement, etc.

Insects:—

The house-fly and honey-bee; observe the larval stage, methods of procuring food, habits, etc.

PHYSIOLOGY AND HYGIENE.

(See fourth grade.)

NOTE.—If three books in physiology are used, the primer might be introduced in this grade; but better results are obtained with *two* books, the elementary in the sixth grade, and the second book in the seventh grade.

DRAWING.

Purpose.—To perfect work of previous grades and to develop the creative faculty.

Drawing from Objects:—

Use bowl, inkstand, pail, fruit-can, goblet, jug, etc.

Encourage pupils to originate decorative forms. These can be first cut from folded paper similar to those placed upon pantry shelves by the thrifty house-wife, then drawn.

Pictorial Drawing:—

1. Teach guide-line, line of direction.

2. Effect of distance,—

(a) As to size.

(b) Horizontal planes—below the eye seem to *rise*, above the eye to *fall*.

(c) Foreshortening, governed by the line of direction.

(d) Convergence.

For designs, see sixth grade.

PENMANSHIP.

The child has now reached the period at which writing should be studied as an art. The first work of succeeding grades is to secure smooth and rapid movement. Exact forms of letters is not therefore of the most importance.

There should be daily drill, after which copy books should be used to show daily progress. For common practice, use practice paper without copies. At the beginning of the term have each pupil write a stanza of America, and each succeeding month re-write it, preserving for comparison. These may be pasted upon a yard of black cambric and hung upon the wall for public inspection.

Position:—

See that pupils sit in good position. No weight of the body should rest upon the arm that does the writing, but the body should be supported by the muscles upon the opposite side. For instance, if a person writes with the right hand, the left foot should rest firmly upon the floor and the body be sustained by the muscles of the left side of the body.

Movement:—

Practice the muscular or forearm movement. This means that the arm should move upon the muscle and the fingers retain an unchanged position. Have pupils place the forearm upon the desk with the palm of the hand lying flat. Then, without moving the arm, close the hand loosely, bringing the first joints of the fingers upon the desk. With the hand in this position move it back and forth as far as possible without moving the sleeve. This constitutes the muscular movement,—the movement of good penmanship. Practice this movement several minutes each day with nothing in the hand, then with pen or pencil, tracing short, straight lines.

After a few exercises, have pupils use pen and ink, making a straight hair-line.

1
A B C D E F G H I
J K L M N O P Q R
S T U V W X Y Z

2
a b c d e f g h i j k l m n
o p q r s t u v w x y z 1 2 3 4 5 6 7 8 9 0

Optional Capitals 3 Optional Capital and Terminal Letters

A B C D O P R b h q k y

Suggestive Drill Exercises 4

O o m m m n n n n n n n e

O o u u u u u u u u s e u n i o n

l l l b b b h h h z z z y y y g g g

5

There are ships that pass in the night,
There are ships like visions of light,
The ship that sails,
And the ship that steams,
Mighty the timbers,
And tight the seams,

Practice the Following:—

1. Stopping and starting while tracing a line.
2. Combination of straight and curved lines.
3. Regular flowing movements of ovals.
4. Counting for pupils so that a regular movement will be acquired.

The exercises for this work are many, and the following are merely suggestive:— One point must be emphasized; that is, an exercise is valuable in proportion as it is mastered. Give, therefore, few movements, but master them.

It is not the province of this manual to attempt to sustain the claims either for or against any system of penmanship, but the fact that good penmanship can be acquired only by persistent practice must not be overlooked. The success of pupils will be measured by the amount of practice given to these and other exercises.

Vertical Writing:—

1. Observe that the downward stroke only is vertical, the upward stroke taking an angle.
2. See that all downward strokes are parallel.
3. Close the o's at the top.
4. When the muscular movement is well established, combine with it the finger-movement.

SIXTH GRADE.

READING—Fourth reader (different series from fifth grade.)

ARITHMETIC—Decimals, denominate numbers, bills, etc. (See fifth grade.) Problems carefully explained.

SPELLING—Speller.

GEOGRAPHY—Half of second book.

PENMANSHIP—Copy-book.

PHYSIOLOGY AND HYGIENE—Second book. 2

LANGUAGE—First book.

DRAWING—Use of objects.

NATURE STUDY AND SCIENCE.

Text-books—In all branches.

Apparatus—Slate, pencil, sponge, pen, ink, and practice paper.

READING.

In the sixth, seventh, and eighth grades the attention should be divided between punctuation, figures of prosody, and literary contents with special reference to the ingenuity of those devices of style that are used to produce a strong impression on the reader. As literary study is the highest phase of reading work, its prominence should increase with each succeeding grade.

Supplementary Reading:—

Systematic study of classics may now be commenced. The following course is suggested for the sixth, seventh, and eighth grades:

SIXTH GRADE:—

First term,—Legend of Sleepy Hollow; The Huskers.

Second term,—Grandfather's Chair: We are Seven.

Third term,—Hiawatha; Barefoot Boy.

Other selections might be made from the following list: Irving's Sketch-Book, Among the Hills, Rip Van Winkle, Pied Piper of Hamelin.

SEVENTH AND EIGHTH GRADES, FIRST YEAR:—

First term,—Tanglewood Tales; Cotter's Saturday Night.

Second term,—Dickens' Christmas Carol; Snowbound; Among the Hills.

Third term,—The Alhambra; Evangeline.

Selections might also be made from the following: Launching of the Ship, Courtship of Miles Standish, Enoch Arden, The Great Stone Face.

Second Year:—

First term,—Gray's Elegy; The Deserted Village; Lady of the Lake.

Second term,—The Vision of Sir Launfal; The Prisoner of Chillon.

Third term,—Julius Caesar; Speech on Conciliation of the Colonies.

Selections might also be made from the following: Webster's Bunker Hill Oration, The Ancient Mariner, Fortune of the Republic.

Spelling:—

See fifth grade.

Penmanship:—

See fifth grade.

LANGUAGE.

As in the fifth grade, much attention should be given to written exercises. These should include imaginative journeys, pleasure excursions, biographical sketches, and local matters of interest.

Much care should be taken that definitions are fully understood and thoroughly memorized.

Analyze many sentences without the diagram; its continual use obscures the pupil's analytical insight.

ARITHMETIC.

FALL TERM:—

The ordinary fall term of three months should be sufficient time for the mastery and completion of decimals. Make clear and fasten in pupils' minds the laws that fix the decimal point. (See fourth grade suggestions.) In pointing off in multiplication and division, *never* allow a pupil to guess at it. Constantly ask, "Why do you place the point there?"

In writing decimals let the *names* of the first *six* decimal places be thoroughly mastered, and allow no "cutting and trying." Pupils should be able to give instantly the number of places to point off for tenths, hundredths, thousandths, etc. Try the following with class at the board:

Simply *naming figures*, teacher says: "Write 2-3-5-4-9." (Pupils write.)

Teacher explains that "Ready—Point!" will be the signal for entire class to be ready for pointing off, then says, "Make it *thousandths*" (pause) "Ready—Point!"

(Pupils place point in unison.)

"Erase point—*Ten thousandths*" (pause), "Ready—Point!"

"Erase—*Hundredths*" (pause), "Ready—Point!" etc.

Teach thoroughly how to reduce common fractions to decimals and the converse. Give many problems in U. S. money.

WINTER TERM:—

If the fall term has been long enough (not less than three months) to finish decimals, the work for this term will consist in learning and applying the tables of measures of extension, capacity, weight, time, etc.

As the fifth and sixth grades are largely occupied in teaching pupils the mechanics of numbers, continue to teach "business methods." Drill on the following:

1. To multiply 24, 27, etc., by a multiplier which is an aliquot part of 10 or 100:—

(a) By $33\frac{1}{3}$ or $\frac{1}{3}$ of 100,—

$$24 \times 100 = 2400$$

$$24 \times 33\frac{1}{3} = \frac{1}{3} \text{ of } 2400 = 800.$$

$$27 \times 100 = 2700$$

$$27 \times 33\frac{1}{3} = \frac{1}{3} \text{ of } 2700 = 900.$$

Variations of above,—

By $32\frac{1}{3}$,—

$$32\frac{1}{3} = 33\frac{1}{3} - 1$$

$$24 \times 33\frac{1}{3} = 800.$$

$$24 \times 32\frac{1}{3} = 800 - 24 = 776$$

$$27 \times 32\frac{1}{3} = (\frac{1}{3} \text{ of } 2700) - 27 = 873.$$

By $34\frac{1}{3}$,—

$$34\frac{1}{3} = 33\frac{1}{3} + 1$$

$$24 \times 33\frac{1}{3} = 800.$$

$$24 \times 34\frac{1}{3} = 800 + 24 = 824$$

$$27 \times 34\frac{1}{3} = (\frac{1}{3} \text{ of } 2700) + 27 = 927.$$

(b) By $12\frac{1}{2}$,—

$$12\frac{1}{2} = \frac{1}{8} \text{ of } 100$$

$$24 \times 12\frac{1}{2} = \frac{1}{8} \text{ of } 2400 = 300.$$

Other similar multipliers,—

$$13\frac{1}{2} = 12\frac{1}{2} + 1$$

$$11\frac{1}{2} = 12\frac{1}{2} - 1$$

$$6\frac{1}{4} = 12\frac{1}{2} \div 2.$$

(c) By $37\frac{1}{2}$,—

$$37\frac{1}{2} = \frac{3}{8} \text{ of } 100$$

$$24 \times 37\frac{1}{2} = \frac{3}{8} \text{ of } 2400 = 900.$$

2. To multiply by some number whose component parts are aliquot parts of 10 and 100:—

(a) By $38\frac{1}{3}$,—

$$38\frac{1}{3} = 33\frac{1}{3} + 5$$

$$24 \times 38\frac{1}{3} = (\frac{1}{3} \text{ of } 2400) + \frac{1}{2} \text{ of } (10 \times 24) = 920.$$

(b) By $42\frac{1}{2}$,—

$$42\frac{1}{2} = 37\frac{1}{2} + 5$$

$$24 \times 42\frac{1}{2} = (\frac{3}{8} \text{ of } 2400) + \frac{1}{2} \text{ of } (10 \times 24) = 1020.$$

Other similar multipliers,—

$$15 = 10 + (\frac{1}{2} \text{ of } 10)$$

$$-17\frac{1}{2} = 10 + 5 + (\frac{1}{2} \text{ of } 5)$$

$$27\frac{1}{2} = 20 + 5 + (\frac{1}{2} \text{ of } 5).$$

3. To multiply by 99:—

$$99 = 100 - 1$$

$$24 \times 99 = 2400 - 24 = 2376.$$

4. To multiply together two mixed numbers when the whole numbers are alike and the sum of the fractions equals a unit:—

$$5\frac{3}{4} \times 5\frac{1}{4} = ?$$

$$\left. \begin{array}{l} \frac{1}{4} \\ \frac{3}{4} \end{array} \right\} \text{ or } 1 \times 5 \left. \begin{array}{l} \\ \end{array} \right\} \text{ or } 6 \times 5 = 30$$

$$5 \times 5 \left. \begin{array}{l} \\ \end{array} \right\} \frac{3}{4} \times \frac{1}{4} = \frac{3}{16}$$

$$30\frac{3}{16}$$

Hence the rule,—

Multiply the whole number by itself plus *one* and add the product of the fractions, using this form:—

$$\begin{array}{r} 5\frac{3}{4} \\ 5\frac{1}{4} \\ \hline 6 \times 5 + (\frac{3}{4} \times \frac{1}{4}) = 30\frac{3}{16} \end{array}$$

5. To multiply a number of two digits by 11:—

$\begin{array}{r} (a) \quad \begin{array}{cc} 2 & 4 \\ 1 & 1 \end{array} \\ \hline 2 \left(\begin{array}{c} 2 \\ 4 \end{array} \right) 4 \\ \hline 2 \quad 6 \quad 4 \end{array}$	$\begin{array}{r} (b) \quad \begin{array}{cc} 2 & 9 \\ 1 & 1 \end{array} \\ \hline 2 \left(\begin{array}{c} 2 \\ 9 \end{array} \right) 9 \\ \hline 3 \quad 1 \quad 9 \end{array}$
--	--

Hence the rule,—

Between the tens and units of the given number insert their sum. If this sum be more than 9, add 1 to the tens of original number.

6. To divide by any number which is an aliquot or a fractional part of 10 or 100:—

- (a) $2500 \div 100 = 25$
- (b) $2500 \div 33\frac{1}{3} = 3 \times 25 = 75$
- (c) $2500 \div 50 = 2 \times 25 = 50$
- (d) $2500 \div 20 = 5 \times 25 = 125$
- (e) $2500 \div 75 = 2500 \div (\frac{3}{4} \text{ of } 100) = \frac{4}{3} \text{ times } 25 = 33\frac{1}{3}$
- (f) $2500 \div 37\frac{1}{2} = 2500 \div (\frac{3}{8} \text{ of } 100) = \frac{8}{3} \text{ times } 25 = 66\frac{2}{3}$.

Other similar divisors:—

- $66\frac{2}{3} = \frac{2}{3} \text{ of } 100$
- $62\frac{1}{2} = \frac{5}{8} \text{ of } 100$
- $87\frac{1}{2} = \frac{7}{8} \text{ of } 100$.

Give exercises in reduction, addition, subtraction, multiplication, and division of compound numbers. Have pupils explain problems daily.

Give much drill on problems relating to measurements of surface, such as plastering, carpeting, papering, etc. Require pupils to measure room and make some problems of their own.

SPRING TERM:—

Board and timber measure; examples relating to measurements of bins, timber, walls, cellars, wood-piles, areas, and solids of all kinds. Give a large number of practical examples that will make pupils familiar with these.

Give many exercises for mental drill. Let the unit of comparison be the square foot. *Say nothing of square inches.*

Problem.—How much lumber in a 2×4 , 16 ft. long? In this case imagine the piece cut into two strips 4 in. wide, making a board 8 in., or $\frac{2}{3}$ ft. wide. *Every foot of length is then $\frac{2}{3}$ of a foot of lumber; 16 ft. of length is $\frac{32}{3}$, or $10\frac{2}{3}$ ft.*

Applications,—

- (a) How many feet of lumber in a 2×8 , 1 ft. long? Ans., $\frac{1}{4}$ ft.
In a 3×9 , 1 ft. long? Ans., $2\frac{1}{4}$ ft.
In a 4×10 ? In a 6×8 ? In a 2×4 ? In a 10×12 ? In a 5×6 ?
- (b) How many feet of lumber in a 9×12 , 40 ft. long? Ans., $9 \times 40 = 360$.
- (c) How many feet of lumber in a 8×6 , 24 ft. long? Ans., $4 \times 24 = 96$.

NOTE.—Insist that pupils work these mentally. Do not stop with one or two exercises.

GEOGRAPHY.

In making a study of any country give special attention to,—

- (a) Productive regions and their products.
- (b) Exports—resulting from surplus of products.
Imports—resulting from deficiency of products.
- (c) Navigable rivers, lakes, canals, railways, and harbors, as determining prominent commercial centers.
- (d) Native animal and vegetable life, and mineral deposits.

Alternation:—

In schools having but one teacher the number of recitations may be lessened by combining certain classes. It is not necessary to make two classes in the second book in geography. In case there are both sixth and seventh grades, let the sixth grade do seventh grade work, completing latter part of geography in sixth year. Then the following year, have this grade (now the seventh) do sixth grade work, completing first half of book with the new sixth grade.

DRAWING.

Drawing from Objects:—

Purpose.—Same as fifth grade.

1. Practice in free hand, circle, and curve drawing may be gained from such figures as the hollow cylinder.

(a) Front view.

(b) Turned to the right.

(c) Turned to the left.

2. Make similar drawing of the cube both below and above the eye.

Elements of Perspective:—

These should be applied to the drawing of room interiors, residence streets, etc.

Teach convergence to a point and continue the study of distance effects.

(See designs on next page.)

NATURE STUDY.

In this grade the work should deal more with nature and science in their classified forms.

Animals:—

Study of types,—

(a) Mollusks.

(b) Radiates.

(c) Articulates.

(d) Vertebrates.

(1) Reptiles.

(2) Fishes.

(3) Birds.

(4) Mammals.

Mineralogy:—

Soils, rocks, fossils, coal measures, precious stones.

Physics:—

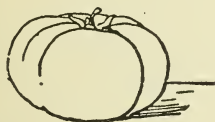
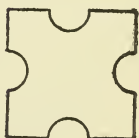
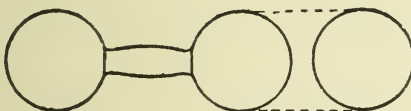
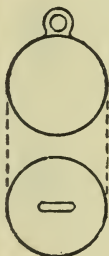
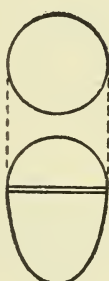
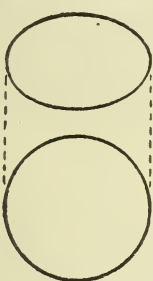
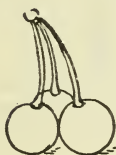
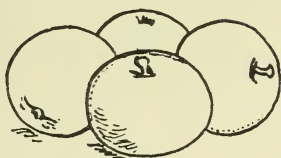
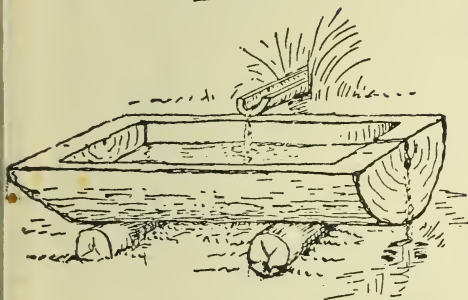
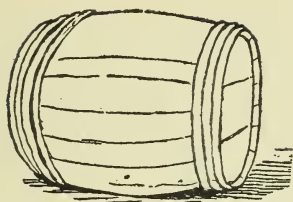
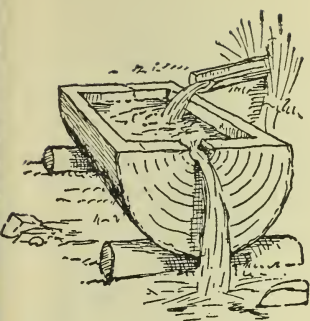
Rainbow, spectacles, spy-glass, microscope.

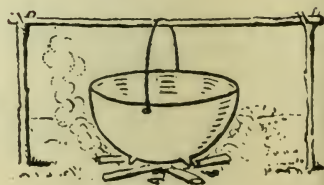
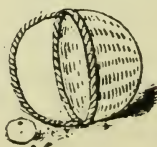
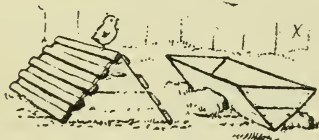
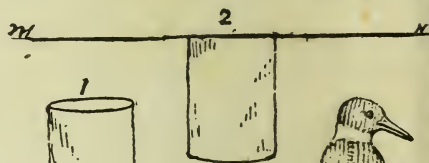
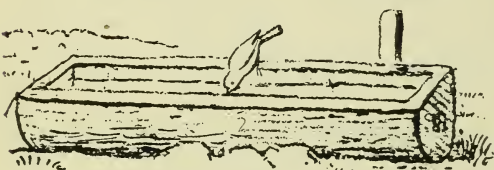
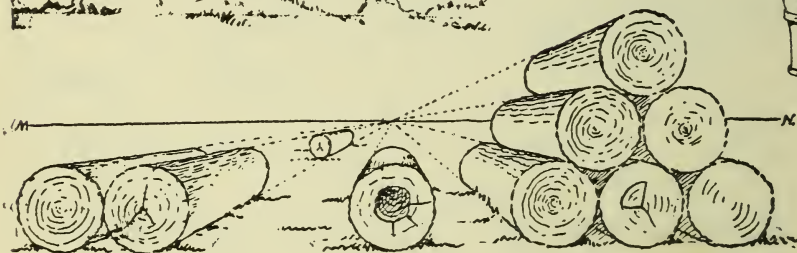
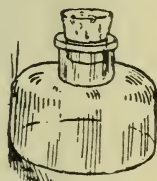
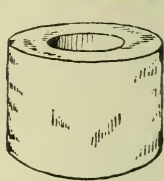
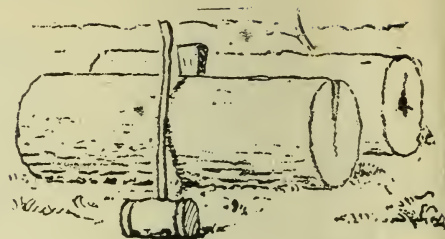
Many easy experiments may be made to show pressure of the air and water, expansive power of heat, etc. If the teacher has no book on this subject, see "Easy Experiments in Physics," by Preston Smith, which is a work of merit specially prepared for elementary science, published by the Morse Co., Chicago, at 45c, postpaid.

N. B.—The Michigan Agricultural College prepares, for free distribution, bulletins along certain lines of nature study, and any teacher desirous of obtaining them as an aid in this work can do so by corresponding with the secretary, A. C. Bird, Lansing.

PHYSIOLOGY AND HYGIENE.

The first book in this subject should be completed in this grade.





COMMERCIAL GEOGRAPHY.

In the study of geography give to the pupil's knowledge breadth and vitality by teaching commercial geography,—the interchange of natural and manufactured products. Teach also how the present conditions of living have been made possible only by the educated intellect. Show the practical and commercial value of science, thus fortifying against the fallacy that a broad education is simply ornamental.

Plant the seeds of respect for labor by illustrating how large a portion of the value of products is due to it; on the other hand, teach respect for capital by showing that the great enterprises of the world cannot be carried on without large sums of money. There is no more important work resting upon the teachers of today than this teaching of the interdependence of labor and capital, with the reciprocal duties of each.

Below are some suggestive outlines which the progressive teacher should not only use, but enlarge upon.

Cotton:—

American cotton is superior to any other. Its product in 1894 exceeded \$210,000,000. Sea-island cotton, grown on the islands off the coast of South Carolina, Georgia, and Florida, is the finest in the world. Its quality is changed when attempts are made to raise it on the mainland.

Cotton-Seed:—

Until 1852 the seed of cotton was considered worthless; it is now a valuable commodity and a staple article of commerce. Its products are,—

1. Cotton-seed meal, used as a fertilizer and as food for cattle. Its hull makes excellent fuel, and the ash resulting from its combustion is manufactured into potash.
2. Cotton-seed oil, when highly refined, is the equal of olive oil and has largely superseded it in many parts of this country.
3. Stearine, the fatty part of the oil, is used in the manufacture of butterine, cotton-lene, and the adulteration of lard.

In 1894 the exports of cotton-seed oil and its products was \$14,000,000.

Iron:—

Found in nearly all parts of the world; but the United States, Great Britain, and Germany produce four-fifths of the world's supply. In 1894 the United States exported nearly \$30,000,000 of iron and steel goods, and imported nearly \$20,000,000, mostly from England. Its different products are,—

1. Cast-iron, which contains four or five per cent of carbon and is very brittle.
2. Malleable, or wrought iron, which contains no carbon and is not elastic.
3. Steel, which contains from one and a half to two per cent of carbon, and is very elastic and strong.

Steel can be tempered to almost any degree of hardness, toughness, or elasticity. The world's supply is furnished almost *entirely* by the United States, Great Britain, and Germany.

By the "old process," it required a week to remove the excess of carbon from iron to produce steel; by the Bessemer process all the carbon is first removed and then the necessary amount added, being done in fifteen or twenty minutes. In a large mill, iron from the smelter may become a steel-rail, ready for use, in two hours.

In 1892 the United States, Great Britain, and Germany, in the order named, produced a total of 10,500,000 tons of steel.

The commercial value of iron is gauged almost entirely by the labor involved in its preparation. A \$5 bar of iron is changed in value by labor as follows: Made into horse-shoes, \$10; into steel needles, \$55; into pen knives, \$3.285; into buttons, \$29,500; into watch springs, \$240,000—more than its weight in gold.

Copper:—

Found both in a pure state and in combination with other minerals. Three-sevenths of the world's supply comes from the United States, rich mines existing in Michigan and Montana. Valuable deposits have also been found in Utah, Arizona, and New Mexico. Its electrical conductivity and the increased applications of electricity, have greatly stimulated its production. Its products are,—

1. Brass, an alloy of copper and zinc.
2. Bronze, an alloy of copper and tin; by increasing the amount of tin, bell-metal is produced.
3. Verdigris, the product of acetic acid on copper.
4. Paris green, blue vitriol, and copper paint.

Gold:—

Found in a metallic form, usually imbedded in quartz. It is extracted by crushing the rock, mixing the ground rock with water and quicksilver, when the latter unites with the gold and forms an amalgam. The quicksilver, or mercury, is then driven off by heat, becoming a gas; the free gold remains. Nine-tenths of the world's supply is produced by the United States, Australia, South America, and Russia. Cripple Creek, Col., is said to furnish nearly one-third of that found in the United States.

Owing to its softness, gold is alloyed with harder metals for use. It is one of the heaviest metals, weighing $19\frac{1}{3}$ times as much as water.

Quicksilver:—

This metal, known when in combination with sulphur as *cinnabar*, is largely used in extracting gold and silver from crushed ore. It is found in Cinnabar, Cal., in Spain and Austria.

Nickel:—

This is not an abundant mineral. The most productive mine in the United States is near Lancaster, Pa. Nickel-plating is an American invention.

Aluminum:—

Only a few years ago the manufacture of this metal on a commercial scale was regarded as almost beyond the range of possibility, but the inventive genius of Chas. M. Hall, a graduate of Oberlin College, has discovered a cheap process for its extraction by fusing aluminum oxide with cryolite, then passing an electric current through the solution. The market price has fallen from \$5 to less than 50 cents per pound, and the numerous uses to which it is already put will undoubtedly be largely increased, this industry bidding fair to become a most important one, the metal being produced by the United States in large and increasing quantities. In 1896 the amount of crude aluminum produced by this country exceeded 1,300,000 pounds, or one-third of the world's output.

Coal:—

The United States annually produces over 145,000,000 tons of coal. Its products are,—

1. Coke, made by subjecting coal to intense heat.
2. Gas, produced by distilling bituminous coal, a ton yielding about 10,000 feet of gas.
3. Coal-tar, a residue substance produced by distillation.
4. Aniline, made from coal-tar, the base of aniline dyes of which there are more than one hundred.

Petroleum:—

The products, named in order of refining, are,—

1. Gasoline.
2. Naphtha.
3. Benzine.
4. Kerosene.
5. Paraffine, used in making candles.
6. Vaseline, the substance skimmed in process of refining.
7. Asphalt, petroleum thickened by absorption of oxygen. A lake of asphalt is found on the Island of Trinidad.

Clay:—

Products:—

1. Terra-cotta brick (annual product \$50,000,000).
2. Heavy chinaware, made from the better grade of clay.
3. Porcelain, made from the purest white clay.

The total exports of the United States during the ten years preceding 1892, in value averaged \$760,000,000 per annum; the imports for the same time averaged \$650,000,000 per annum.

The six greatest commercial cities of the United States, mentioned in order, are New York City, Boston, New Orleans, San Francisco, Philadelphia, and Baltimore.

SEVENTH GRADE.

READING—Fifth reader.

SPELLING—Speller.

PENMANSHIP—Copy-book.

GRAMMAR—Half of book.

ARITHMETIC—Percentage and applications;
book in mental arithmetic.

GEOGRAPHY—Second book completed.

PHYSIOLOGY AND HYGIENE—Second book.

HISTORY—To Washington's administration.

DRAWING—Objects continued, decorative de-

signs added.

Text-books—In all branches except civil government.

Apparatus—Slate, pencil, sponge, pen, ink, and practice paper.

READING.

The work for this year should be largely a study of literature and authors. Select from the reader the best literary productions of several authors and study those of each writer in groups, noting similarities and differences. Try to have pupils become familiar with each author's style.

Supplementary Reading:—

(See sixth grade.)

SPELLING.

(See fifth grade.)

PENMANSHIP.

See fifth grade. When pupils finish the seventh grade they should know well the elements and principles of penmanship and be able to analyze all the letters of the alphabet.

GRAMMAR.

During the first year of technical grammar, avoid tangling, perplexing, and obscure points. Definitions should be accurately learned and continually applied by pupils. The definition is the bed-rock of etymology.

Alternation:—

The remarks on geography made in the sixth grade apply with equal force to seventh and eighth grade grammar work, it being immaterial whether syntax or etymology is taught in seventh grade. In case there are both seventh and eighth grade grammar pupils, let seventh grade do eighth grade work, completing the latter part of grammar in seventh grade. Then the following year have this grade (now the eighth) do seventh grade work, completing first half of book together with the new seventh grade.

ARITHMETIC.

FALL TERM:—

Prepare pupils for quick and accurate work in each application of percentage by doing the corresponding work from some text-book in mental arithmetic; also by first reviewing decimals. Have exercises similar to the following:—

- (a) .05 of 400 means $5 \times \frac{1}{100}$ of 400.
 Solution: $\frac{1}{100}$ of 400 is 4.
 $\frac{1}{100}$ of 400 is 5×4 , or 20.
 .01 of 500 means? }
 .03 of 2140 means? } Solve as above.
 .05 of 25 means? }
- (b) 1 % means .01.
 25 % of 600 means $25 \times \frac{1}{100}$ of 600.
 Solution { 1 % of 600 = 6.
 { 25 % of 600 = $25 \times 6 = 150$.
 20 % of 40 means?
 16 % of 50 means?
 Give many examples until the pupil habitually thinks "1 % is what?"
- (c) 1. What is 1 %, if 2 % of a number is 40?
 Solution: 1 % is $\frac{1}{2}$ of 40, or 20.
 If 5 % is 60? 30? 12?
 If 20 % is 600? 120? 80? 20?
2. What is 1 %, if 60 is 18 %? 2 %? 10 %? 50 %? 100 %?
- (d) 1. What is 100 %, if 24 is 8 %? 12 %?
 2. 12 is 20 % of what?
 3. 18 acres is 6 % of what?
- (e) 1. 1 is what per cent of 100?
 Solution: 1 is $\frac{1}{100}$ of 100, or 1 %.
 2. 3 is what per cent of 100?
 Solution: 1 is 1 % of 100.
 3 is as many times 1 % as 3 is times 1, or 3 times 1 %.
 3. 8 is what per cent of 400?
 Solution: 4 is 1 % of 400.
 8 is as many times 1 % as 8 is times 4, or 2 times 1 %.
 4. 60 is what per cent of 1200?
 Solution: 12 is 1 % of 1200.
 60 is as many times 1 % as 60 is times 12, or 5 times 1 %.
- If this analysis seems difficult at this stage use ratios; e. g.,
 8 is what per cent of 400?
 Solution: 8 is $\frac{8}{400} = \frac{1}{50}$ of 400.
 $\frac{1}{100} = 1$ %.
 $\frac{2}{100} = 2 \times 1 \% = 2$ %.

Have pupils express the list given below in four or more forms as follows:—

$$12\frac{1}{2} \% = .12\frac{1}{2} = \frac{12\frac{1}{2}}{100} = \frac{25}{100} = \frac{25}{200} = \frac{1}{8}$$

$$33\frac{1}{3} \%, 25 \%, 16\frac{2}{3} \%, 14\frac{2}{7} \%, 11\frac{1}{3} \%, 8\frac{1}{3} \%, 2\frac{1}{2} \%, 1\frac{2}{3} \%, 1\frac{1}{3} \%, 1\frac{1}{4} \%$$

Table of Equivalents:—

(To be memorized.)

10 %	= $\frac{1}{10}$
20 %	= $\frac{1}{5}$
25 %	= $\frac{1}{4}$
30 %	= $\frac{3}{10}$
40 %	= $\frac{2}{5}$
50 %	= $\frac{1}{2}$
60 %	= $\frac{3}{5}$
70 %	= $\frac{7}{10}$
75 %	= $\frac{3}{4}$
80 %	= $\frac{4}{5}$

$6\frac{1}{4} \%$	= $\frac{1}{16}$
$12\frac{1}{2} \%$	= $\frac{1}{8}$
$37\frac{1}{2} \%$	= $\frac{3}{8}$
$62\frac{1}{2} \%$	= $\frac{5}{8}$
$87\frac{1}{2} \%$	= $\frac{7}{8}$
$16\frac{2}{3} \%$	= $\frac{1}{6}$
$33\frac{1}{3} \%$	= $\frac{1}{3}$
$66\frac{2}{3} \%$	= $\frac{2}{3}$
$\frac{1}{2} \%$	= $\frac{1}{200}$
$\frac{1}{4} \%$	= $\frac{1}{400}$
$\frac{3}{4} \%$	= $\frac{3}{400}$ etc.

In drilling upon problems in percentage, it is good practice to have pupils rule slates or tablets in three columns and work each problem by a three-fold process, as follows:—

Problems:—

1. What is 25 % of 400?
2. 240 is 75 % of what?
3. 60 is what per cent of 90?

Fractional.	Analytical.	Formula.
(1) $25\% = \frac{1}{4}$ $\frac{1}{4}$ of 400 = 100.	1 % of 400 = 4 25 % of 400 = $25 \times 4 = 100$.	$b = 400$ $p = ?$ $r = 25$ $p = 400 \times .25 = 100$.
(2) $75\% = \frac{3}{4}$ Since $\frac{3}{4}$ of No. = 240 $\frac{1}{4}$ of No. = $\frac{1}{3}$ of 240 = 80 $\frac{3}{4}$ of No. = $4 \times 80 = 320$.	Since 75 % of No. = 240 1 % of No. = $\frac{1}{75}$ of 240 = 3.20 100 % of No. = $100 \times 3.20 = 320$.	$b = ?$ $p = 240$ $r = .75$ $b = 240 \div .75 = 320$.
(3) $1 = \frac{1}{90}$ of 90 $60 = 60 \times \frac{1}{90} = \frac{60}{90}$ or $\frac{2}{3}$ of 90 $\frac{2}{3} = 66\frac{2}{3}\%$ $\therefore 60 = 66\frac{2}{3}$ of 90.	1 % of 90 = .9 60 is as many times 1 % as 60 is times .9, or $66\frac{2}{3}$ times $66\frac{2}{3}$ times 1 % = $66\frac{2}{3}\%$ $\therefore 60 = 66\frac{2}{3}$ of 90. Or, 60 is $\frac{60}{90}$ or $\frac{2}{3}$ of 90 $\frac{2}{3} = 66\frac{2}{3}\%$ $\therefore 60 = 66\frac{2}{3}\%$ of 90.	$b = 90$ $p = 60$ $r = ?$ $r = 60 \div 90 = .66\frac{2}{3}$.

* Though the sign % cannot be used in formulas, the *rate* should be read as "per cent."

WINTER TERM:—

Commission, insurance, taxes, interest, partial payments, bank discount, trade discount.

Omit true discount, stocks, bonds, and annual interest.

In computing interest, teach thoroughly one method and *insist upon accuracy*.

During this term teach pupils to make out notes and bills of various kinds, such as bills of articles commonly purchased, bills for work done, etc. Place forms on the blackboard, giving special attention to capitalization and punctuation. Have these copied until the pupils are familiar with them; then give examples requiring these forms, and have pupils arrange them in neat, accurate shape, carrying them out in detail and receipting. (For model forms of bills see eighth grade.)

Suggestive Forms:—*Negotiable Note.*

\$1500.

LANSING, MICH., Jan. 25, 1897.

Ninety days after date, I promise to pay Roscoe D. Dix, or order, Fifteen Hundred Dollars, with interest at six per cent, value received.

(Signature.)

Receipt.

\$25.

JACKSON, MICH., Jan. 20, 1897.

Received of Geo. B. Judson Twenty-five Dollars on house rent for the month of December, 1896.

(Signature.)

Bank Check.

\$500.75.

GRAND RAPIDS, MICH., Jan. 5, 1897.

First National Bank.

Pay to Jas. McMillan, or order, Five Hundred and $\frac{75}{100}$ Dollars.

(Signature.)

Legal Brevities:—

A note dated on Sunday is void. A note obtained by fraud or from one intoxicated is void. If a note be lost or stolen, it does not release the maker; he must pay it. An endorser of a note is exempt from liability, if not served with notice of its dishonor within twenty-four hours of its non-payment. A note by a minor is void. Notes bear interest only when so stated. Principles are responsible for their agents. Each individual in partnership is responsible for the whole amount of the debts of the firm. Ignorance of the law excuses no one. It is a fraud to conceal a fraud. It is illegal to compound a felony. The law compels no one to do impossibilities. An agreement without consideration is void. Signatures in lead pencil are good in law. A receipt for money is not legally conclusive. The acts of one partner bind all the others. Contracts made on Sunday cannot be enforced. A contract with a minor is void. A contract made with a lunatic is void. Written contracts concerning land must be under seal.

Book-keeping:—

Preparatory work should be given in this grade as follows:—

1. Teach method of ruling, and of writing dollars and cents in columns.
2. Give much practice in footing columns and striking balances. This is done as follows:—

Add the debit and credit money columns. Place the difference (red ink) in the smaller column, and in the item column at the left, write the word "Balance" (red ink). The sum of each column will then be the same. Two red lines are drawn below the footings to indicate that the account is closed. The difference (black ink) is then placed in the money column of the larger side and the word "Balance" (black ink) written in the item column.

3. Teach the general rules that,—

What costs value belongs on the debit side.

What brings value belongs on the credit side.

All cash on hand and received, belongs on the debit side.

All cash paid out belongs on the credit side.

The balance of cash account always shows the money on hand.

SPRING TERM:—

Exchange, partial payments, occupations, trade discount, and a review of previous term's work.

In partial payments, use the United States rule. A diagram similar to the following will enable pupils to compare their work and discover errors.

	Principal.	Time.			Interest.	Amount.	Payment.	New Principal.
		Yrs.	Mos.	Das.				
First.								
Second.								
Third.								
Fourth.								

GEOGRAPHY.

(For alternation see sixth grade.)

Besides completing the text-book carefully review the map of Michigan, using the following outline:

1. Location—latitude, longitude.
2. Boundary, coast line, area.
3. Mountains, valleys, plains.
4. Rivers, lakes.
5. Islands, peninsulas, capes.
6. Climate.
7. Productions:—
 - (a) Farms.
 - (b) Mines.
 - (c) Manufactories.
8. Important railroads, business centers.
9. Capital.
10. Government.
11. Educational system.
12. State institutions:—
 - (a) Educational.
 - (b) Penal.
 - (c) Reformatory.
13. Discovery, settlement.
14. Michigan as a territory.
15. Michigan as a state.
16. Michigan's noted men.

NOTE.—By omitting the historical part, this outline may be applied to the study of any state or, with some additions, to that of the United States as a whole.

Draw a progressive map, i. e., outline, and fill in as each feature is studied.

1. Counties—number, name and origin, position.
2. Coast—length, character, ports.
3. Islands—number, size, importance.
4. Surface—character, results, elevations, river basins.
5. Rivers—navigable, water power.
6. Soil—varieties, productions.
7. Productions:—
 - (a) Agriculture—where, what?
 - (b) Manufactured—where, what?
 - (c) Minerals—kind, use.
8. Commerce:—
 - (a) Of lakes—Detroit river.
 - (b) Shipments of grain, iron, copper, and lumber.
 - (c) Salt.
9. Occupations—wages, laborers.
10. Government—departments, officers.
11. Education—public school, State educational institutions, colleges.
12. Chief cities; why so located; locate others from them.
13. Railroads, canals—names, termini, cities passed.
14. Rank among other states in size, productions, minerals, education.

References:

History—Pattengill's Primer of Michigan History.
 Silas Farmer & Co.'s Cyclopedia of Michigan, Detroit.
 Silas Farmer & Co.'s Cyclopedia of Michigan.
 Grove's Primer of Geography. Appleton & Co.
 Child and Nature, Frye. Hyde Park Pub. Co.
 The Teaching of Geography, Geike. MacMillan.
 Methods and Aid in Geography, King. Lee & Shepard.
 The Earth and Its Story, Heilprin. Silver, Burdett & Co.
 Nichol's Topics in Geography. D. C. Heath & Co.
 Baker's Geography for Young Folks. Ed. Pub. Co.

Explain the government land survey, testing pupils by the following questions:—

1. Where does the first principal meridian start? The second? The third? etc.
2. Where does the base line cross each meridian?
3. What are correction lines? Why necessary? How frequent?
4. Range, township, section.
5. Which is the "school section?"
6. On what section is your schoolhouse?

HISTORY.

Events are the results of causes; no event happens. Cause and effect are as inseparable in history as are sunlight and shadow in the material world. History is a record of events; but the study of history is much more than the mere conning and remembering of these events. Indeed, the person who reads history, exercising his memory only, can never rise to the dignity of a student of history.

The events of the past stand as one member of an equation of which the causes are the other member. The student of history must master the whole equation and, *by* its mastery, from present known conditions find the unknown quantities of the future. What caused this condition? Why did this event or series of events come to pass? What has been the result of this line of action, what of that line? What will be the result of this course of procedure? Such questions as these are the tools with which the historian removes the debris of the past and cleaves his way through the walls that hide the mysteries of the future.

Since it is by the history of the past that we judge of the future, see to it that pupils look through and beyond the mere story. No other subject taught in our schools can develop the higher mental qualities—imagination, judgment, and memory—more rapidly than does history; and none can be more easily used in both oral and written language training. Therefore, do not permit the child's knowledge of history to become a mass of useless and unclassified facts.

Historical study should develop the following:—memory, good language, love of right action, love of the great and good, *love of country*, and love of our fellow men. In brief, it should give correct ideas of statesmanship and produce good citizens.

Preparatory Work:—

In this work pupils should make a study of two things:

- (a) The European conditions existing before the discovery of America.
- (b) The three great inventions and effect upon the world.

Maps:—

During this and all succeeding work, pupils should make historical maps of the countries studied, developing them as the study progresses. Each pupil should have his individual map, and a class-map should also be developed with each lesson, by pupils whom the teacher appoints daily. No pupil should be excused from any of this map work.

When reciting, each pupil should point out upon this class-map every place mentioned; and one of the review tests should be to give an entire epoch, locating the places in this manner.

In the study of wars a campaign-map should be developed. The routes of the different armies may be traced by a broken line, blue representing the Americans, or Unionists, and red the enemy, with flags (colored to represent the victorious army) placed wherever a battle occurs. By such campaign-maps much that is confusing and obscure may be made plain.

Not only should maps be studied with reference to political boundaries and locations, but also with reference to the physiography of a country. Soil and climate determine products and occupations and thus the characteristics of peoples. Oftentimes the philosophy of a country's history can be read in its geography. Mountain passes have been the doorway through which adventurous spirits have passed to settle unknown countries. A hill, creek, or ravine has decided battles upon whose results hung the destiny of future generations.

Use of Topics:—

1. Give each day topical outlines from which pupils shall recite.
2. At the close of each recitation let pupils reproduce this outline from memory, either upon the blackboard or tablet.
3. Each week give a test in which the entire topics of the week are reproduced from memory.
4. Let the final test upon any epoch include the reproduction of all its outlines. The ability to recall at will such a series of outlines, will make one sure-footed in chronology without the ordinary struggle of memorizing.
5. Give much attention to the selection of *formative* history. Make the central, or pivotal events, the nuclei around which cluster those events that exist only because of the central one.

Dates:—

Teach important dates thoroughly. These do not exceed fifty and may even be reduced in number without endangering the thoroughness of the work. A date usually has three parts,—the time, the event, the individual; when *one* is mentioned, the pupil should give the other two. For instance, teacher says "Columbus;" pupil replies "America, discovered 1492." Teacher says "1541;" pupil replies "Mississippi River discovered by De Soto."

As fast as learned, these dates should be placed upon a chart, and three or four minutes each day be devoted to their review by the *entire school*. The following dates are suggested:

Pivotal, or Primary Dates.—Oct. 12, 1492; Oct. 4, 1498; 1565; 1607; 1619; Dec. 22, 1620; 1621; 1689; 1774; April 19, 1775; 1776; 1781; 1783; 1787; April 30, 1789; 1803, 1807, 1812, 1820, 1830, 1837 (Mich.), 1844, 1846, 1848, 1861, 1863, 1865.

Secondary Dates.—1497, 1541, 1582, 1609, 1636, 1643, 1660, 1754, 1759, 1765, 1770, 1800, 1803, 1813, 1832, 1850, 1866, 1867, 1868, 1869, 1873, 1879, 1881, 1893.

Pictures:—

Give much study to the illustrations that are found in such variety and abundance in every good text-book. Have pupils reproduce the simpler ones. This teaches accurate observation and attention to detail, besides being of value as a drawing exercise.

Biography:—

It has been said that the history of a country is the history of its great men. A person possesses an individuality that appeals to the interest of pupils much more than does a country or epoch. Therefore much time should be spent in brief biography of great men.

Political Questions:—

While the teaching of party politics should be carefully excluded from the public school, it is impossible to understand the philosophy of events without a study of political questions. These need not be discussed, but the mere facts learned as history.

Current Events:—

The value of teaching current events is no longer questioned. There is danger, however, of "faddism." Do not make this work a sort of current *gossip*. Select only such events as are worth remembering—such as make history.

FALL TERM:—**Alternation.**

There need be but *one* history class in the rural school. The seventh grade pupils can do eighth grade work with the eighth grade; and the following year—although eighth grade pupils—do the seventh grade work, finishing history with the Adoption of the Constitution, and Washington's Inauguration.

The work of this term should include the following:—

- (a) Discovery and exploration.
- (b) Settlement of Massachusetts, Maine, New Hampshire, Connecticut, Rhode Island, and New York.

Suggestions:—

1. Detailed study of the three great inventions,—the compass, gunpowder, printing.
2. The Indian—his skill, strength, endurance, character, commercial intercourse, articles of barter, etc. Compare the number in 1492 with the present number. Note his present civilization and location—is he justly treated?
(Draw a wigwam, bow and arrow, tomahawk, Indian, etc.)
3. What did each of the following accomplish:—Eric, Cortez, Pizarro, Coronado, Cabrillo, Behring.
4. Life in New England—character of the Pilgrims (Miles Standish); the Town Meeting; the New England Confederacy—a step toward federal union.
5. Relation of Roger Williams to Massachusetts Bay Colony—not banished for religious views, but ordered back to England for publication of a treasonable pamphlet in which he stated that the king was an intruder and had no right to grant lands in America, which instead should be purchased. However, Williams made his escape and fled to the Indians for protection. (See Twichell's "John Winthrop.")
6. Massachusetts Bay Colony contrasted with Plymouth—wealth, growth, government, and religious toleration.
7. The landed nobility of New York—vast estates upon the Hudson; impassable gulf between the common people and the nobility an impediment to settlement.

(Emphasize Connecticut's first constitution and liberal charter; the rapid growth of Rhode Island and why.)

WINTER TERM:—

- (a) Settlement of New Jersey, Pennsylvania, Delaware, Maryland, and Georgia.
- (b) Revolutionary War until July 4, 1776—after that, War of Independence.

Suggestions:—

1. Study "Penn's Holy Experiment"—relations of the Quakers and Indians, influence upon the history of the United States.
2. Mason and Dixon's line.
3. Georgia—no political liberty, land ownership conditioned upon severe military duty, consequent migration to Carolina. Georgia's heroic work in the War of Independence.
4. The real cause of war was "The vicious system of commerce that England forced upon the colonists." As severe battles were fought against the king's prerogative in the English Parliament as in American Councils. Bunker Hill and Yorktown were no more important factors in the struggle than the blows dealt by Pitt. Opposition on both sides of the Atlantic was prompted by the same love of freedom and justice. The war was not to destroy, but to defend the independence of the individual colonies; hence patriots were more ardent supporters of *states* than of the new Congress, and preferred state offices to government offices (the germ of state sovereignty).
5. Taxation—make its theory plain to pupils.

SPRING TERM:

- (a) War of Independence completed.
- (b) The Confederation.
- (c) The Constitution.

(Give necessary reviews.)

Suggestions:—

1. Discouragements—lack of men and funds; opposition of loyalists (at the close of the Revolution 100,000 Tory refugees left the country); jealousies among officers—Lee, Gates, Arnold.
2. Independence unthought of at commencement of conflict, but a rapid growth of public sentiment in its favor.
3. Territory over which the United States exercised absolute sway at close of the war.
4. Constitution of 1781—critical period.

CONFEDERATION AND UNITED STATES GOVERNMENT CONTRASTED.**CONSTITUTION OF CONFEDERATION.**

Powers of State,—
 Retained sovereignty.
 Executed the laws of Congress.
 Could not be coerced.
 Each state one vote.
 Executive Department—None.
 Judiciary Department—None.
 Amendments—By unanimous consent.

CONSTITUTION OF UNITED STATES.

Powers of State,—
 No state sovereignty.
 Executes no U. S. laws.
 Can be coerced.
 Vote according to population.
 Executive Department—President.
 Judiciary Department { Supreme Court.
 { Circuit Court.
 Amendments—By legislatures of three-fourths of the states.

ELEMENTARY CIVICS—GOOD CITIZENSHIP.

In connection with the study of Michigan history, give frequent lessons in this subject. The following brief outline is suggested:—

Home Government:—

Legislative }
 Judicial }
 Executive } Parents.

School Government:—

Legislative }
 Executive } District School Board

Township Government:—

Legislative—Town meeting.
 Judicial—Justices.
 Executive—Officers.

County Government:—

Legislative—Supervisors.
 Judicial—Circuit court.
 Executive—Sheriff.

State Government:—

Legislative—Legislature.
 Judicial—Supreme court.
 Executive—Governor.

Teach the purpose of government, individual responsibility therefor, duties of the various officers, etc.

N. B.—Judson's "Young American," a civic reader published by Maynard, Merrill & Co., N. Y. City, would be an excellent aid in this work. Teachers can obtain single copies postpaid for 60c.

For civil government of Michigan see *Michigan Manual* (Red Book), to which every school district is entitled. If you have not received one write to your commissioner.

CIVIL GOVERNMENT.

Thoroughly and systematically review all knowledge of civil government already acquired. Study, in their order, the government of the school district, township, county, State, and the United States; the legislative, executive, and judicial departments of each; the term of office, qualifications, duties, and salary of each officer.

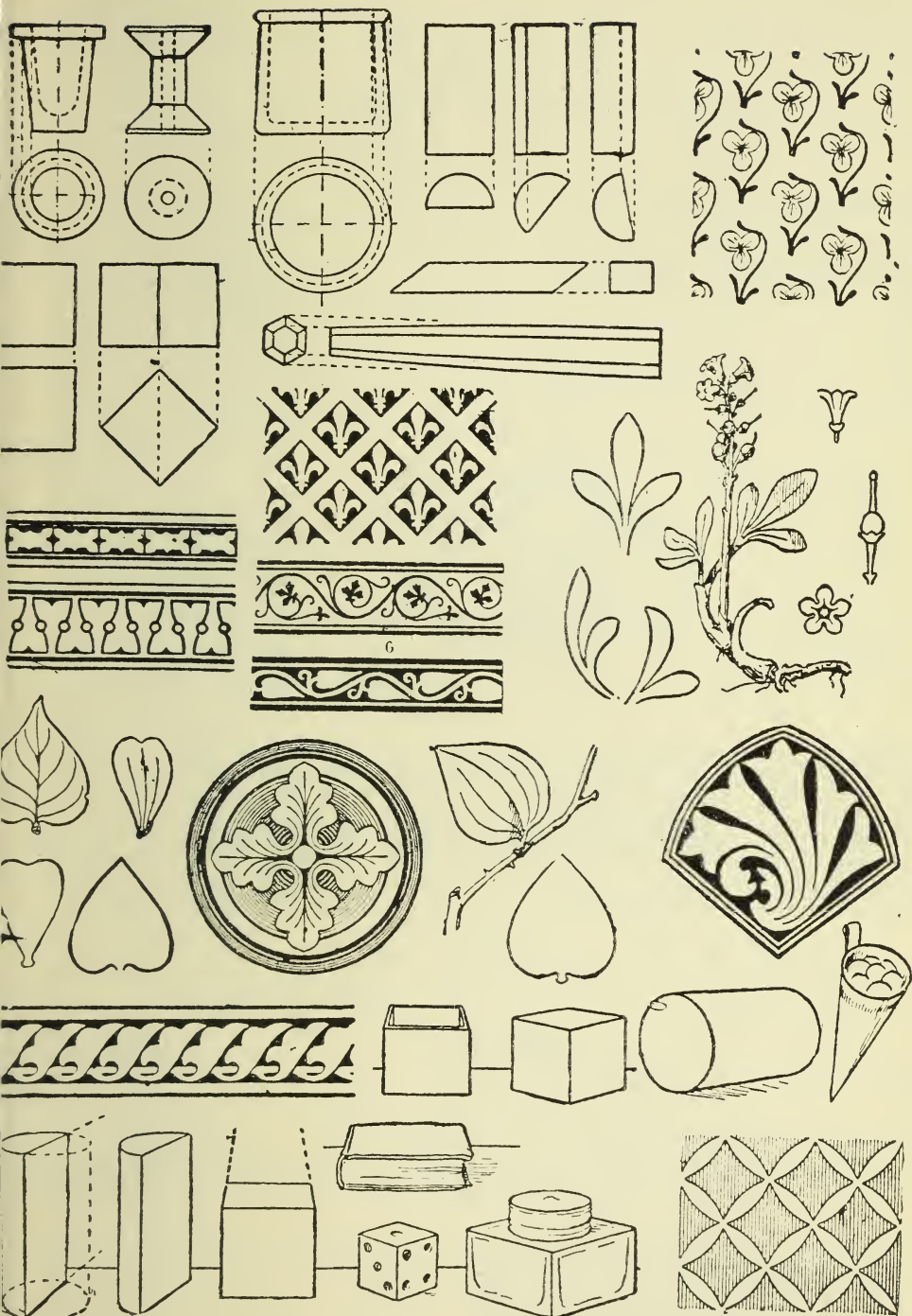
Carefully explain	{	Naturalization.
		Right of eminent domain.
		Ex-post facto law.
		Writ of habeas corpus.
		Bill of attainder.
Drill on dates of	{	Impeachment.
		Annual school meeting.
		Township election.
		County election.
		General election.
		Meeting of Board of Supervisors.
		Meeting of State Legislature.
		Meeting of Congress.
	{	Electoral College.

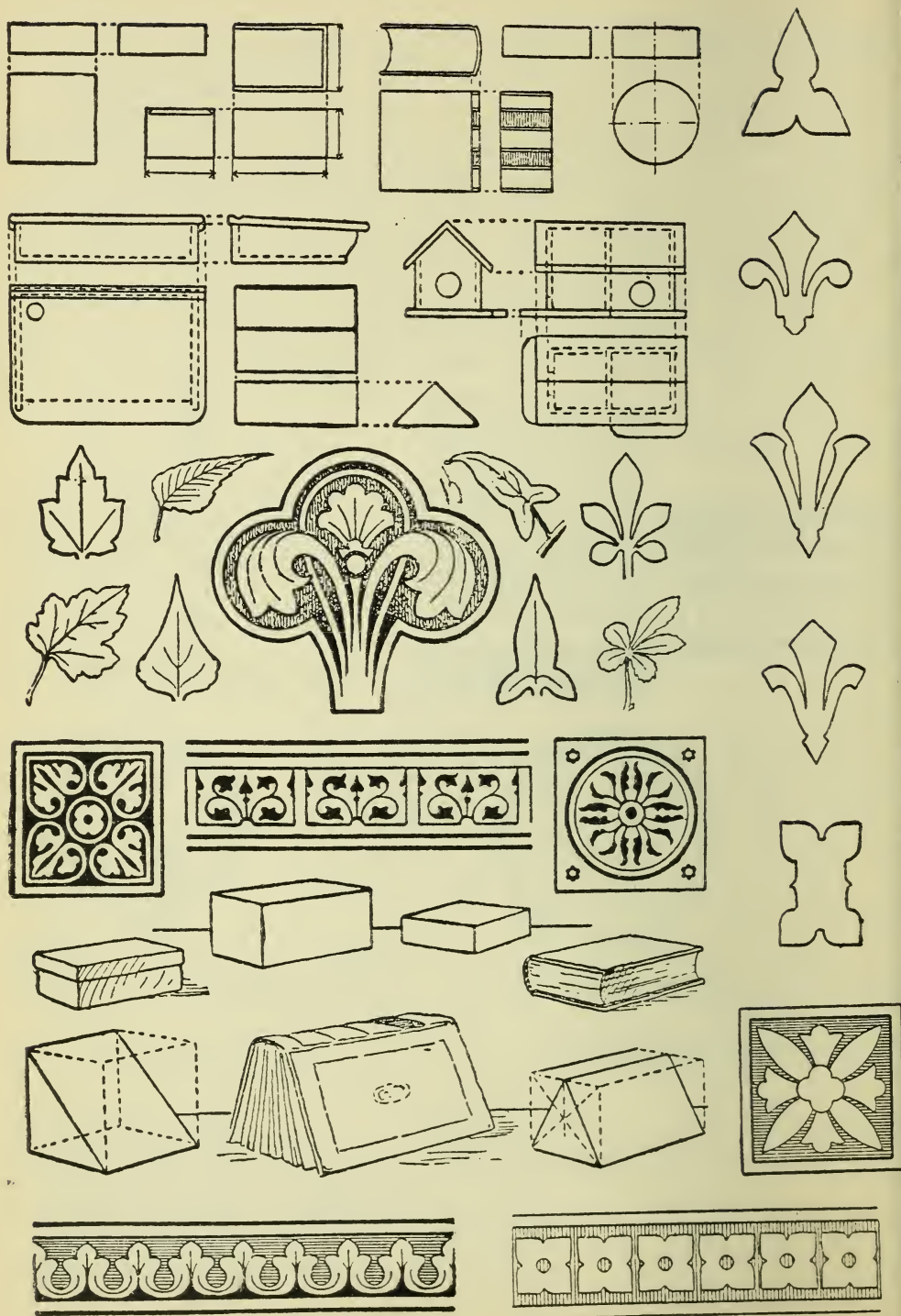
As a guide in this work we recommend H. R. Pattengill's *Civil Government of Michigan* at 25 cents; also Morgan's "Patriotic Citizenship," published by American Book Co. Price, postpaid, \$1 per copy.

DRAWING.**Drawing from Objects:—**

Encourage sketching. Draw a wagon, a shed, the schoolhouse, the pump, etc.
 Geometric forms:—(a) Plane surfaces. (b) Solids.

(See designs on next page.)





EIGHTH AND NINTH GRADES.

EIGHTH GRADE.

READING—Fifth reader or good literature.	ARITHMETIC—Second book completed, mental work continued.
SPELLING—Orthography.	HISTORY—Complete the book.
PENMANSHIP—Copy-book.	CIVIL GOVERNMENT—With book.
GRAMMAR—Book completed.	BOOK-KEEPING—See outline.

Text-books—In all branches except book-keeping.

Apparatus—Slate, pencil, sponge, pen, ink, and practice paper.

NINTH GRADE.

Reviews during year with eighth grade.

FALL TERM:—

Elementary algebra.

Botany or general history.

WINTER TERM:—

Elementary algebra.

Elementary physics or general history.

SPRING TERM:—

Elementary algebra.

Botany or general history.

Ninth grade reviews should include arithmetic, grammar, geography, United States history, and such other work as can be done; but no ninth grade classes in these subjects should be formed. Ninth grade pupils should recite in eighth grade classes, but should do much more thorough work than the eighth grade pupils.

READING.

(See seventh grade.)

ORTHOGRAPHY.

In using a text-book in this subject, do not overlook spelling. Give constant drill in all difficult words found in literature, history, and civil government, or review preceding year's spelling with the seventh grade.

PENMANSHIP.

(See fifth grade.)

GRAMMAR.

(See seventh grade.)

Emphasize the composition work and teach common figures of rhetoric.

ARITHMETIC.

FALL TERM:—

Review percentage, including interest, profit and loss, discount.

Teach ratio and proportion.

Mental arithmetic work from text-book should be kept parallel with the written work in these subjects. Analysis cannot be too critical in this year's work. There is no better place to teach accurate use of language.

WINTER TERM:—

Mensuration, measurements of plane surfaces,—squares, triangles, rectangles, etc. Practical problems to apply them. Cube and square root, and their applications to solids. Also study thoroughly the application of these as used by mechanics.

The subject of mensuration may be very much simplified. Too often the rules are given without illustration, pupils attempting to remember each independently and seeing no connection between the various figures. As most of the pupils will never study geometry, the teacher should endeavor to so illustrate the matter that they may have as little as possible to remember arbitrarily. Beginning with the rectangle, pupils will see that its area is equal to the product of its length and breadth. Then show them that an oblique-angled parallelogram with an equal base and altitude is its equivalent, hence its measure is the same. They will readily see that the measure of the triangle is one-half that of the parallelogram, and that the trapezoid may be divided into two triangles whose bases are the parallel sides of the trapezoid and whose common altitude is that of the trapezoid. Next deduce the rule for measurement of the circle by considering it as composed of an infinite number of triangles.

In like manner we may pass from the rectangular prism to the triangular, and from that to the general one. Then show that the triangular prism may be divided into three equivalent pyramids, and from this triangular pyramid we may pass to the general one and to the cone. The sphere is seen to be composed of an infinite number of pyramids whose altitude is the radius of the sphere and the sum of whose bases makes up its surface, etc.

SPRING TERM:—

Complete and review both mental and written arithmetic.

Teach the simple equation and its transformations as used in arithmetic.

HISTORY.

FALL TERM:—

WASHINGTON'S ADMINISTRATION, 1789-1797.

1. Financial difficulties.
2. Whisky insurrection—strength of government demonstrated.
3. Foreign affairs (Citizen Genet)—Monroe doctrine foreshadowed.
4. Rise of political parties.

Suggestions:—

Republic young and weak—arguments advanced against its continuance. Expanse of territory; show how distance has been eliminated by inventions. (Have pupils estimate the time of travel from Oregon to Washington by coach and by railroad.)

ADAMS' ADMINISTRATION, 1797-1801.

1. Alien and sedition laws.
2. Kentucky and Virginia resolutions—first fruits of the "state sovereignty" idea.
3. Trouble with France; X Z Y papers—"Millions for defense, but not one cent for tribute."—*Pinckney*.

JEFFERSON'S ADMINISTRATION, 1801-1809.

1. Louisiana purchase.
2. Lewis and Clarke's exploration.
3. Impressment.
4. Embargo and non-intercourse act.
5. Fulton's steamboat.

Suggestions:—

Jefferson, a strict constructionist, increases the public domain by purchase, then justifies the act by saying "It is the will of the people." Influence of steamboat on commercial growth and western immigration—its far-reaching effects.

MADISON'S ADMINISTRATION, 1809-1817.

1. War of 1812—attitude of New England (Hartford convention); war spirit in the south and west; England's scheme to gain the Hudson valley and lower Mississippi—battle of New Orleans.
2. Political parties.

Suggestions:—

Duplicity of Bonaparte. Indian question—Tecumseh's defeat; its lesson, that Americans were to exercise authority over long disputed territory. Madison not a war president—his appointments unfortunate. The true mettle of American soldiers when led by able generals was shown by "Old Hickory" at New Orleans. Growth of manufactures necessitated by the war, made the United State industrially independent. Increase of tariff.

MONROE'S ADMINISTRATION, 1817-1825.

1. Missouri compromise.
2. Monroe doctrine.
3. Opposition to the "Holy Alliance."
4. Florida purchase.

Suggestions:—

Missouri compromise and Florida purchase were in the interests of slavery. Necessity of national road during the war.

J. Q. ADAMS' ADMINISTRATION, 1825-1829.

1. Erie canal.
2. First railroad—Growth.

Suggestions:—

"Clinton's Big Ditch"—Influence on industrial development. (Length, 363 miles; cost, \$50,000,000—repaid to the state by tolls with a clear profit of more than \$40,000,000.)

JACKSON'S ADMINISTRATION, 1829-1837.

1. Civil service.
2. Anti-slavery movement (Garrison).
3. Tariff—Nullification.
4. National bank.

Suggestions:—

Jackson's unique personality—both strong and weak; the first president to apply Marcy's Maxim, "To the victor belong the spoils." "Battle of the Giants"—Webster and Hayne. "The Trio of Statesmen"—Clay the Peacemaker, Webster the teacher of nationality and union, Calhoun the defender and exponent of slavery.

VAN BUREN'S ADMINISTRATION, 1837-1841.

1. Financial crisis.
2. Mormons.
3. Immigration question.

HARRISON-TYLER ADMINISTRATION, 1841-1845.

1. Telegraph.
2. Annexation of Texas.

Suggestions:—

Annexation of Texas urged by President Tyler, supported by Calhoun, Jackson, and Polk; opposed by Clay, Benton, and Van Buren, the question really being southern preponderance in congress. Compare soldiers of the United States with those of Mexico. Note that the twin inventions of Morse and Stevenson, each so necessary to the full development of the other, were seemingly providential in their simultaneous conception and growth, although their interdependence was probably unthought of by the inventors.

WINTER TERM:—

POLK'S ADMINISTRATION, 1845-1849.

1. Doctor Whitman in Oregon—perilous journey to Washington—influence against English greed—"Fifty-four-Forty, or Fight." Treaty with England.
2. Mexican War—Struggle of Texas for independence—Santa Anna's recognition, Mexico's refusal. Admission to the Union. Steps that led to the war—results.
3. Gold—emigration.

Suggestions:—

Let pupils discuss the question,—Resolved, That the Mexican War was Unjust.

FILLMORE'S ADMINISTRATION, 1849-1853.

1. The Slavery question.
2. Omnibus Bill—measure of "The Great Pacificator."

Suggestions:—

Fillmore was a supporter of Clay's compromise ideas.—his party in New York called "Silver Grays;" his opponent in his own state was Wm. H. Seward, who believed in no compromise, followers of the latter being called "Woolly-heads, or Seward-Whigs." Fugitive slave law aroused much antagonism, and the "underground railroad" was systematized so that a chain of stations led from Kentucky and Maryland across the Ohio. These stations were a day's journey apart; fugitives were thus concealed and fed during the day, and helped along at night. Its president, a Quaker named Levi Coffin, assisted in the escape of about 100 slaves annually.

This administration may be called the literary era of the United States. Harriet Beecher Stowe, William Cullen Bryant, J. Fennimore Cooper, Henry W. Longfellow, James G. Whittier, Edgar Allan Poe, and Nathaniel Hawthorne, were at the height of their literary careers.

Notable Events—Jennie Lind's first visit to America; laying of the corner stone at Washington, July 4, 1851; death of J. C. Calhoun, Henry Clay, and Daniel Webster.

PIERCE'S ADMINISTRATION, 1853-1857.

1. Perry and Japan—important treaty.
2. Kansas-Nebraska Bill—struggle between the North and South.

BUCHANAN'S ADMINISTRATION, 1857-1861.

1. Dred Scott Decision.
2. Business panic.
3. Political parties.
4. Election of Lincoln—Secession.

Suggestions:—

Geographical conditions—Mason and Dixon's line. Refusal of immigrants to locate where labor was belittled, retarded the development of southern states. The representation from the North consequently increased more rapidly than from the South, and the Senate became the stronghold of slavery, the jealousy of these two sections over new territory culminating in war. Equilibrium of senatorial representation broken by the admission of Texas. Missouri Compromise—beginning of the "Irrepressible Conflict." Loyalty of southern mountaineers—contributed 100,000 troops to the northern cause; their soil not adapted to cotton and tobacco, hence no slaves and no selfish interest in the slavery question.

National development—the California gold excitement, opening of the Mississippi Valley by railroads, improvement of ocean transportation, and general advance in arts, contributed to great material prosperity. Wild speculation and over-investment followed, resulting in the panic of 1857.

LINCOLN'S ADMINISTRATION, 1861-1865.

Secession:—

1. Preliminary Events—
Sumpter.
Call for volunteers.
2. Defense of Washington—
Bull Run.
Peninsula campaign.
Jackson in the Shenandoah.
Seven-days' battles.
Lee's first invasion.
Lee's second invasion—Gettysburg.
Grant before Richmond.
Early's raid.
Sheridan's raid.
3. Blockade,—foreign relations.
4. Opening of the Mississippi.
Forts Henry and Donelson.
Battle of Shiloh.
Surrender of New Orleans.
Capture of Vicksburg.
5. The Negro—
Emancipation proclamation.
Negro soldiers.
6. Sherman's campaign—
Capture of Atlanta.
March to the sea.
7. Close of War—
Fall of Richmond.
Surrender of Lee.
Capture of Jefferson Davis.
Death of Lincoln.
8. Results—
Settlement of the questions,—
Secession.
Slavery.
Strength of Government.

Suggestions:—

Privateers.—Five of the seven formidable privateers were built in England. Charles Francis Adams, U. S. Minister to England, aroused by English contempt of his protest, uttered the following celebrated words,—"We are too busy now to demand justice and satisfaction, but the time will come when we *shall* be heard." France also permitted the construction of ironclads in her ports though only one was launched.

Monitor and Merrimac.—Far-reaching results,—(a) sustained the blockade and thus starved the South into submission; (b) revolutionized naval warfare; (c) shook English confidence in the success of secession, thus helping to prevent recognition by the English.

Peninsular Campaign.—Division of the army. Why? Base of supplies—why an important item in warfare?

Gettysburg.—"Waterloo of the South;" its significance,—Southern victory meant English recognition, there being at that time such a measure under consideration in the House of Commons.

The Negro.—Policy of the North was to treat southern prisoners as felons until 1862, after which prisoners were exchanged until the North enrolled colored troops, whereupon the South refused to exchange for *them* and all exchange ceased.

Threats of the South.—To shoot down every white officer commanding colored troops and enslave every black prisoner.

Lincoln's Retaliation.—To execute a rebel soldier for every officer shot in accordance with the above, and to place a rebel soldier at hard labor on public works for every negro prisoner enslaved. (Study cruelties of prison life—perhaps some old soldier could be induced to give a few talks to the pupils on this subject.)

Sherman's Campaign.—Note the need of telegraph and railroad in modern warfare—one hundred cars of provisions required each day for Sherman's army.

NOTE.—In the study of any war a more complete view is obtained by taking campaigns and their purposes as a whole rather than by their chronology. Thus the Civil War naturally divides itself as in our outline. From this it is not to be understood that contemporaneous events are to be ignored. History should be so taught that pupils will comprehend the entire historical movement, but details of battles and military maneuvers should not be committed to memory.

SPRING TERM:—

JOHNSON'S ADMINISTRATION, 1865-1869.

1. Disbanding the armies.
2. Amnesty proclamation.
3. Treatment of the South,—
 - President's plan—restoration.
 - Congressional plan—reconstruction.
4. Impeachment of President.
5. Amendments to Constitution, 13—14—15.
6. Atlantic cable.
7. Alaska purchase.

Suggestions:—

The different plans of reconstruction led to a terrible struggle between Congress and the President, resulting in his attempted impeachment. Note the disregard of Monroe Doctrine during the Civil War by Napoleon III, and the withdrawal of French troops from Mexico upon request of the United States—Maximilian's sad fate.

GRANT'S ADMINISTRATION, 1869-1877.

1. Pacific Railroad.
2. Fifteenth Amendment.
3. Alabama claims.
4. Indian troubles.
5. Centennial Exhibition.
6. Telephone and electric light.
7. Electoral Commission.

Suggestions:—

Development of the West, Custer massacre, Grant's views of educating the Indian, are all worthy of special attention. Note Grant's honesty; incident,—borrowed \$100 of Senator Sumner to pay expenses of second inauguration, saying he had not money enough. "Black Friday," or the panic among banks, the Chicago and Boston fires, created much excitement. Passage, just before adjournment, of a resolution by the House of Representatives, declaring that Tilden and Hendricks had been elected—a protest against the Electoral Commission.

HAYES' ADMINISTRATION, 1877-1881.

1. Withdrawal of troops from the South.
2. Strike.
3. Improvements on the Mississippi—Eads.
4. Money question—resumption of specie payment.

Suggestions:—

December 17, 1878, at 12:09 p. m. gold was at par for the first time in sixteen years. Mrs. Hayes refused to allow wine served in the White House, and was honored for her courage by having her portrait hung in the Executive Mansion, Martha Washington being the only other lady thus honored. Cleopatra's Needle, a gift from the Khedive of Egypt, was set up in Central Park, New York City.

GARFIELD-ARTHUR ADMINISTRATION, 1881-1885.

1. Assassination.
2. Civil service reform.
3. Cotton Centennial Exhibition—contrast the New South, its diversified industries and educational progress, with the Old South.

Suggestions:—

Garfield's appointment of an enemy of Roscoe Conklin and Thos. C. Platt, to the position of collector of the port of New York, resulted in their resignation from the U. S. Senate. Disastrous floods in the Mississippi Valley rendered one hundred thousand persons homeless. The great Brooklyn bridge was built (5,989 feet long, 85 feet wide).

CLEVELAND'S ADMINISTRATION, 1885-1889.

1. Civil service reform extended.
2. Labor organizations.
3. Chicago anarchists.
4. Important legislation,—
 - Presidential succession.
 - Counting of electoral vote.
 - Interstate Commerce Act.
 - Chinese Immigration Act.
 - Foreign Contract Labor Bill.

Suggestions:—

The death of Grant attracted world-wide attention. From 1885 to 1889 fourteen million dollars was expended annually on the development of the navy. Encroachments made upon Indian reservation in Oklahoma region caused an uprising of the Indians, and settlers were driven out by U. S. troops. The foreign contract labor bill prohibited importation of foreigners under contract to labor.

HARRISON'S ADMINISTRATION, 1889-1893.

1. Settlement of Oklahoma.
2. Pan-American Congress—66 representatives.
3. Reciprocity—treaties with foreign countries (Blaine).
4. The McKinley Act.
5. Seal fisheries.
6. New States.
7. War ships.
8. Hawaiian revolution—proposed treaty.

Suggestions:—

The Mafia Affair.—Results in national entanglement:—crimes committed by an Italian society in New Orleans known as the Mafia were traced to its members by chief of police, David C. Hennessey. Hennessey was assassinated and nine of the Mafia brought to trial, but failure of conviction so enraged the people that a mob forced an entrance to the jail in which the Italians were confined and murdered them all. This caused strained conditions between the United States and Italy, resulting in the payment of \$25,000 by United States to the families of the murdered Italians.

The four-hundredth anniversary of America's discovery was celebrated in New York and many other cities. The death of Mrs. Harrison caused profound grief throughout the country.

CLEVELAND'S SECOND ADMINISTRATION.

As most histories now in use in our schools were published prior to Cleveland's second administration, a more complete outline is given for this than for the other administrations. Pupils should study the following topics by consulting back newspaper files and by conversation with well-informed people. Much of the recent history can be remembered by teacher and parents.

1893.

Hawaiian Treaty:—

One of the first acts of President Cleveland was the recall of the Hawaiian treaty sent to the senate by President Harrison. This treaty provided for the annexation of Hawaii to the United States. Mr. Blount was sent to Hawaii as a special plenipotentiary and all semblance of United States authority was thus removed.

Naval Display:—

During the month of April a most remarkable naval display occurred in New York harbor, consisting of thirty-five war ships, representing ten different countries.

World's Fair:—

On the first of May the Columbian Exposition held in Chicago was opened by President Cleveland. This was the greatest exhibition in the world's history. The total cost of this great enterprise exceeded \$31,000,000; the total number of paid admissions amounted to nearly \$22,000,000.

Financial Depression:—

During this period began one of the most disastrous and extended financial depressions known in our history. On June 30 President Cleveland issued a call for an extra session of congress to consider measures for relief. The principal feature of this session was the repeal of the law known as the Sherman Act, in the hope that the financial stringency would be relieved; but the repeal of this act did not have the expected result in restoring confidence.

Bond Issue:—

The gold reserve, which it is deemed necessary to keep at not less than one hundred million dollars, fell below seventy millions; to meet this deficiency Secretary Carlisle issued proposals for the purchase of fifty million five per cent ten-year bonds. During the succeeding summer the deficit continued until, on August 10, 1894, the reserve stood below fifty-three millions, and a second call for fifty million five per cent ten-year bonds was issued; these were sold to a New York syndicate. The reserve continued to fluctuate and on February 9, 1895, reached its lowest point (\$41,393,212), when the celebrated contract with the Belmont-Morgan Gold Syndicate was made. The storm of protest was so great, however, that the next plan for replenishing the reserve was by a "popular loan" of one hundred million dollars. These bonds were quickly sold, bringing over one hundred eleven millions.

Coxey's Army:—

Soon after the repeal of the Sherman act, business stagnation became visible in all parts of the country, and J. S. Coxey, of Ohio, proposed to march to Washington with 100,000 of the unemployed to make certain demands upon Congress. In response to his call about 10,000 men pressed on to Washington, but were not allowed to march upon the Capitol grounds. After remaining in camp outside the city for a few weeks, they returned to their homes.

Strikes:—

Many extensive strikes occurred. Those in the bituminous coal field were the most extensive, 175,000 miners stopping work. In Massachusetts 35,000 cotton spinners struck. The trainmen on the Great Northern Railway struck in a body, and soon after trouble arose in the car works at Pullman, caused by great reduction in wages without a corresponding reduction in rents collected by the company. When Pullman refused to arbitrate at request of the American Railway Union, the

latter organized a "sympathetic boycott" on Pullman cars. Chicago was the center of great disturbance and the strikes increased daily, until the city was seemingly in the hands of a lawless mob which greatly impeded passenger traffic and destroyed an enormous amount of property. The regulars stationed at Fort Sheridan were ordered to proceed to the city for protection of the mail service, but Governor Altgeld, of Illinois, opposed this, claiming the president had no right to send United States troops without an order from the governor. However, President Cleveland sustained his position and the riots were controlled.

1894.

Tariff:—

Passage of the Wilson Bill precipitated one of the bitterest congressional contests in our history. When the bill finally reached the hands of the President, he refused to sign it, claiming it did not embody the promised tariff reform legislation to which the party was pledged. Both this and the River and Harbor Bill became a law without his signature.

Admission of Utah:—

On July 17, the President signed the bill making Utah a state.

Death of Holmes:—

On October 7, occurred the death of the beloved Oliver Wendell Holmes.

1895.

Niagara Harnessed:—

July 1 witnessed one of the triumphs of modern engineering skill in the first transmission of electrical power from Niagara Falls to Buffalo.

Death of Dr. Smith:—

On November 16, Dr. S. F. Smith, author of "America," suddenly died.

Venezuelan Difficulty:—

In this year occurred the famous Venezuelan boundary controversy. For many years there had been a dispute between Great Britain and Venezuela concerning the boundary of British Guiana, Great Britain claiming that her possessions extended to the Essequibo River. The English seemed determined to hold the ground by force; but this attitude was believed to be contrary to the spirit of the Monroe Doctrine, and on December 17 President Cleveland sent a message to Congress in which he notified England that any encroachment upon Venezuelan territory would be considered an unfriendly act. The dispute continued until the closing days of this administration (February, 1897), when England and Venezuela signed an agreement to abide by the decision of an arbitration committee composed of the following: Baron Herschel and Sir Richard Henn Collins (Judge of the English Supreme Court), both of England; Judge Brewer and Hon. Melville Weston Fuller (Chief Justice of United States Supreme Court), both of America.

1896.

Clara Barton:—

On January 22 Miss Clara Barton, President of the Red Cross Society, sailed for Turkey to care for the sufferers on Armenian battle-fields.

Cuban Situation:—

During the session of congress exciting discussions occurred in both senate and house over the Cuban situation, but with no definite result.

St. Louis Cyclone:—

On March 3 one of the most disastrous cyclones in our history swept over St. Louis, Mo., causing the loss of more than a thousand lives and much property, including the great trans-Mississippi bridge.

River and Harbor Bill:—

The River and Harbor Bill for this session being vetoed by the President, it was promptly passed over his veto.

Consul-General to Cuba:—

The Cuban question still continued to attract wide-spread sympathy, and General FitzHugh Lee was appointed consul-general to Cuba. It was generally supposed that the many stories concerning Spanish atrocities would be investigated by him and the attitude of the United States toward Cuba be definitely stated.

Arbitration Treaty:—

The Anglo-American treaty, a treaty looking toward the settlement by arbitration of controversies between the United States and Great Britain, consumed much time in both House and Senate, attracting wide-spread attention, but failed to become a law.

Items of Interest:—

On December 3 the first cable dispatch between New York and Hayti was sent; and during the same month ex-Queen Liliuokalani came to the United States, hoping by personal influence to gain support in her efforts for restoration.

Germany having imposed a tax of six cents per ton on American shipping, President Cleveland retaliated by similar treatment of German shipping, both acts being contrary to treaty.

MCKINLEY'S ADMINISTRATION.

The administration of President McKinley is fresh in the minds of all, but the following topics are suggested for research:—

1. The Cabinet—See Michigan Manual (Red Book).
2. Extra session convened March 16.
3. Mississippi floods—15,800 square miles submerged, the largest cotton producing area in the United States; \$200,000 voted by Congress to aid the sufferers.
4. Bell Telephone Company wins the suit brought against it by the United States to annul the last Berliner patent.
5. The Morgan resolution regarding Cuban belligerency passed by the Senate, but ignored by the House.
6. Interstate Commerce Act declared unconstitutional—one of the most important decisions in the annals of American jurisprudence.
7. Passage of the Dingley bill.
8. Congress votes \$50,000 for relief of American citizens in Cuba.
9. Congress sets apart June 14 as a National Flag Day.
10. Secretary of the Navy authorized to transport donated supplies to starving India.
11. Treaty providing for annexation of Hawaii sent to the Senate, with a favorable message from the President.
12. Klondike excitement—estimated output for 1897, \$10,000,000. Fort Cudahy and Forty-Mile on opposite sides of Forty-Mile Creek, are the principal trading posts of the American and Canadian transportation companies, respectively. The 141st meridian is the dividing line between Alaska and Canada. Circle City on American soil and Dawson City on the Canadian side, are the two chief camps. They may be reached via Seattle by a water route 4,000 miles long or by a shorter, but far more difficult route, via the lower Alaskan country and through Chilkat Pass.
13. Committee appointed to investigate Nicaraguan Canal route.
14. Great International Commercial Congress formally opened in Philadelphia, June 2.—350 delegates present.
15. Great strike in bituminous coal region of 150,000 miners. The Hazleton Horror—22 killed, 13 fatally injured, and nearly 60 others wounded.
16. Monetary Commission convened in Washington, Sept. 20, for investigation and study of the financial situation.
17. Greater New York—exciting contest for the mayoralty and triumph of Tammany. The patronage controlled by the mayor aggregates half a million dollars in salaries annually.

18. Seal treaty between the United States, Russia, and Japan signed and awaiting approval of Senate, prior to which treaties are never made public. (England agreed to meet with this conference, but finally refused on the ground that Japan was an outside party.)

OUTLINES FOR REFERENCE.

SLAVERY.

Introduced into America by the Dutch in 1619. From 1619 to the Revolution, government controlled by friends of slavery. More than 500,000 slaves in the colonies—few in New England and Middle States, employed as family servants. First law against slavery passed by Rhode Island in 1652. Rapid growth in the South, stimulated by the production of tobacco, indigo, rice, and cotton. Many slaves bore arms in the Revolutionary War and were generally given their freedom.

Clause abolishing slavery was put into first draft of the Declaration of Independence—overruled by southern influence.

Slavery and the Constitution.—The “three-fifths compromise”—importation of slaves forbidden after 1808.

Congressional control of slavery conceded by both North and South during discussions concerning Northwest Territory, 1787. Invention of cotton gin—increased demand for slave labor—“King Cotton.” (The cotton gin indirectly a potent cause of Civil War.)

Louisiana Purchase—Feeling of North; of South.

Missouri Compromise—Missouri asks admission—bitter discussion of slave question—Clay’s compromise, 36° 30’—a victory for the South.

Anti-Slavery Agitation—First society 1688, German Quakers. Prominent abolitionists, Benjamin Lundy, William Lloyd Garrison, Wendell Phillips, John G. Whittier, William Jay.

Independence of Texas—Asks admission to the Union with a pro-slavery constitution—favored by the South—Wilmot proviso.

Compromise of 1850—Union preserved—fugitive slave law—underground railway—the “higher law.”

Kansas-Nebraska Bill—Violation of 1820 compromise—intense excitement—John Brown—Brooks’ attack on Sumner.

Dred Scott Decision—Increase of antagonism between North and South.

Election of Lincoln—A sectional president—excitement of South—Secession.

Emancipation Proclamation—A war measure, slavery abolished by it.

Education of the Negro—In 1890 1,000,000 pupils, 20,000 schools, costing \$7,000,000 per annum—95 per cent of the above money raised by southern whites. Since the war \$50,000,000 spent by South, \$35,000,000 by the North for colored schools. It is estimated that over two and one-quarter million negroes can read and write.

THE TARIFF.

1789—First law passed—8 per cent ad valorem—largely protective.

1812—Manufactures stimulated by the war—tariff doubled as a war measure.

1816—Principle of protection in fact as well as name—tendency to specific duty, 25 per cent until 1819 and then 20 per cent; not sufficient to exclude English wares.

1824—Rate increased—strong sectional feeling. Why?

1828—The “tariff of abominations” imposed duty on raw materials—political rather than economic—opposed by South.

1832—Rate reduced, but principle of taxation retained. Nullification (Calhoun)—Jackson’s proclamation—passage of the “Bloody Bill” by Congress—repeal of Nullification by South Carolina.

1833—Compromise tariff (Clay).

1846—New tariff arranged in nine schedules—moderately protective.

1857—Still greater reduction.

1861—Small revenues owing to reduced tariff of '57—increase of tariff.

1864—Basis of permanent tariff system—both revenue and protective duties increased.

1867—Increased duties on wool and woolen goods.

1869—Copper act passed over Johnson's veto.

1870—Revenue reduced.

1872—Repeal of all duties on tea and coffee—protective duties made the source of revenue.

1883—Decrease of tariff on cheap goods and increase on goods of high grade.

1890—McKinley Act—raw sugar admitted free, raw wool slightly increased, woolen goods considerably advanced, fine goods increased, increase on tin plate (purely protective).

1894—Wilson-Gorman bill (change toward free admission of raw materials) raw wool free, the important change—ad valorem duties on woolen goods, duty on manufactures slightly lowered—sugar not free.

1897—Dingley bill, "A bill to provide revenue for support of the government and to encourage the industries of the United States"—reciprocity clause somewhat broader than that of 1890.

Essential difference between Wilson-Gorman and Dingley bills:—The first was based upon the argument that the United States cannot compete with foreign countries on raw material, the second on the argument that the prosperity of the manufacturer depends upon that of the agriculturist and therefore both need tariff protection.

Important changes by Dingley bill:—Substitutes specific duties for ad valorem; places a "differential duty" on sugar; fosters art by imposing 20 per cent duty, and the wine industry by a duty on still wines of \$1.60 per dozen quarts; aids the manufacture of flax by raising the duty, and transfers wool from free to dutiable list (one of the crowning results from the protectionist's standpoint); favors the culture of lemons and oranges by a duty of one cent per pound. (A great contest waged by California fruit growers for high duties on these fruits.)

MONEY LEGISLATION.

Year.		Gold.			Fineness.	Ratio to Silver.		Silver.			Fineness.	Ratio to Gold.
		Gr.	Gr.	Gr.				Gr.	Gr.	Gr.		
1792	Gold Dollar.	24.75	2.25	27	$\frac{916\frac{2}{3}}{1000}$	1 to 15	Silver Dollar.	371.25	44.75	416	$\frac{892\frac{1}{2}}{1000}$	15 to 1
1834	" "	23.2	2.6	25.8	$\frac{899.225}{1000}$	$\frac{1}{16.002}$	" "	371.25	44.75	416	$\frac{892\frac{1}{2}}{1000}$	$\frac{16.002}{1}$
1837	" "	23.22	2.58	25.8	$\frac{900}{1000}$	$\frac{1}{15.988372}$	" "	371.25	41.25	412.5	$\frac{900}{1000}$	$\frac{15.988372}{1}$

1849—The gold coins were the twenty-dollar and one-dollar pieces (no change in amount or fineness).

1853—A new gold coin, the three-dollar piece. The silver coins (subsidiary) were the half-dollar of 192 grains, and smaller coins in ratio to their values (legal tender for five dollars only).

- 1873—Silver was demonetized and the gold dollar made the unit of value. Congress declared "the silver coins of the United States shall be legal tender at their nominal value for any amount not exceeding five dollars in any one payment"—"the gold coins of the United States shall be a one-dollar piece which, at the standard weight of 25.8 grains, shall be the unit of value, etc." This act omitted mention of the silver dollar, but the trade dollar of 420 grains was substituted for the standard silver dollar, being legal tender for five dollars only—ratio 16.27907 to 1. Coinage of the three-cent piece was discontinued; ratio of fractional silver slightly increased, made 14.95345 to 1.
- 1874—Act passed forbidding coinage of the standard silver dollar.
- 1878—Silver remonetized ($412\frac{1}{2}$ grs.), standard silver declared one dollar. Secretary of Treasury authorized to purchase and coin each month not less than \$2,000,000, nor more than \$4,000,000 worth of silver bullion.
- 1879—Fractional coin made a legal tender for ten dollars—holders permitted to exchange these coins at the Treasury in sums of twenty dollars or multiples thereof.
- 1890—Act passed authorizing the purchase of silver bullion offered at the mint, in amount not exceeding 4,500,000 ounces per month, nor in price one dollar per ounce, U. S. Treasury notes redeemable in coin (silver certificates) to be issued in payment thereof—also authorized the coinage, until July 1, 1891, of 2,000,000 ounces each month, and thereafter as much as might be needed to redeem said Treasury notes.
- 1893—Act passed repealing the purchasing clause of 1890 and outlining the policy of government as follows:—To continue use of both gold and silver as standard money, and to coin both into money of equal intrinsic and exchangeable value.

BOOK-KEEPING.

In accordance with the suggestion of the committee of twelve the following simple forms of keeping accounts are outlined. It is thought that the work is best fitted for the winter term when the older pupils, especially the boys, are most likely to attend school.

It is not necessary that a teacher be master of the intricacies of book-keeping to teach the following business forms and accounts.

FIRST MONTH:—

Order.

Lansing, Mich., May 2, 1901.

R. L. Covey.

Pay Henry Raymond Thirty Dollars
and charge to my account.

Henry Cook.

Receipt.

Kalamazoo, Mich., June 2, 1901.

Received from Harry Conant one hundred
dollars in full of account to date.

\$100.

Henry Moon.

Bank Note (Negotiable).

Lansing, Mich., Sept. 2, 1901.

Thirty days after date I promise to pay
George H. Case, or order, Five Hundred and $\frac{50}{100}$
Dollars. Value received. Interest at 6 per
cent, payable at City National Bank.

Due October 5, 1901.

Harry E. Brown.

Joint Note (negotiable).

Detroit, Mich., Nov. 2, 1901.

Ninety days after date, for value received, we jointly and severally promise to pay James R. Brown, or order, Twenty-five and $\frac{75}{100}$ Dollars, with interest at 6 per cent per annum. Payable at his residence.

Due Feb. 3, 1902.

Chas. R. Mode.

Mary E. Clark.

Draft.

Lansing, Mich., Sept. 23, 1901.

At sight pay to the order of Simeon Gray One Hundred Fifty and $\frac{00}{100}$ Dollars, value received, and charge to the account of

Clark C. Smith.

To George Boswell,

Detroit, Mich.

A draft is based upon the theory that the drawee has money in his possession belonging to the drawer.

A note, order, or draft, is negotiable only when made payable to "order" or "bearer."

Statement Form of Account.

1897.

Student in Account with H. B. Clark.

Dr.

Jan.	3	To 25 lbs. Sugar	@ \$.05	1	25		
"	4	" 4 " Coffee	.20		80		
"	15	" 6 " Crackers	.10		60		
Feb.	5	" 1 bbl. Apples		3	00		
Mar.	5	" 1 doz. Oranges			30		
"	28	" 3 bu. Potatoes	.60	1	80	7	75
Cr.							
Jan.	4	By Cash		3	00		
"	8	" 3 Days' Work	@ 1.25	3	75		
Mar.	1	" 500 ft. Lumber	12 M	6	00	12	75
Balance his due						5	00
Received of.....(student)							
Five dollars to balance account.							
H. B. Clark.							

Give *one month* of this work, with business forms, notes, drafts, receipts, etc.

In like form write the following, using actual dates:—

1. I (student) sell R. S. Clarkson mdse. to the amount of \$40.
2. A horse for \$75 on acct.
3. He pays cash, \$25.
4. Sell him the following: 1 suit clothes, \$12; 5 yds. broadcloth @ \$2; 1 bbl. sugar @ 5c.
5. He loans me \$25, receiving credit on acct.
6. He furnishes 25 cords of wood @ \$1.60.
7. Settlement is made and cash paid to balance the account.

Student in Account with Jos. Easton, a bookseller:—

1. Sells him \$25 worth of clothing.
2. Buys International Dictionary \$9.50, dictionary holder \$3.
3. Returns the dictionary holder and takes a better one worth \$5.
4. Sells him 12 yds. calico at 8c; 15 yds. muslin at 13c; 12 yds. silk at \$1.12½.
5. Settlement and cash to balance account.

Student buys of Harlow Green:—

1. A carriage, \$75; a gas stove, \$12; 1 keg of nails, \$2.80.
2. Sells him two suits of boys' clothes at \$8.50 and \$9.75; 1 pair of shoes \$4.
3. Account settled by cash.

Further Transactions:—

- January 1, 1897.—Bought of James Graham on account, 1 bbl. flour, \$4.50; 42 lbs. granulated sugar @ 6c; 2 lbs. raisins @ 12c; 1 lb. tea @ 50c; 8 lbs. coffee @ 44c. (J. G. Cr.)
- January 11.—Paid James Graham cash on account, \$15.
- January 18.—Sold James Graham on account, 1 cheese, 28 lbs. @ 12c; 14 bu. potatoes @ 45c; 2 bbls. apples @ \$3.50; 6 cabbages @ 5c. Bought of him 10 gals. molasses @ 62c; 1 box salt, 42c; 1 gross matches, 10c; ¼ lb. nutmegs, 45c; ¼ lb. pepper, 12c.
- January 19.—Sold Galon Keene on account, 2 cords dry wood @ \$4.75; 1 cord green wood, \$4.12.

January 20.—Galon Keene shod horse on account, \$1.75; and mended chain, 31c. Sold him 1 bbl. apples, \$3.50; 4 bu. potatoes @ 56c; 16 lbs. butter @ 25c.

January 25.—Galon Keene hired horse and sleigh to go to Belfast, for which we charged him \$3 on account.

January 26.—John H. Eastman ironed sled and charged us on account, \$7.42.

January 28.—John H. Eastman shod our oxen and charged us on account, \$3.

January 30.—John H. Eastman set shoes on horse, 60c; mended chain, 20c; mended shovel, 15c; for which he charged us on account.

SECOND MONTH:—

Teach next the keeping of the cash book. Impress upon the pupils the necessity of keeping account of money received and paid out.

Instruct carefully in balancing the account. Remember all *false* entries (made for the purpose of balancing an account and carried to a new account in black ink) are made in *red* ink. If pupils have no red ink, have them *underscore* such words and figures.

Cash Account.

		Dr.		Cr.	
Jan.	1	To Amt. on Hand	100 00		
"	1	By Amt. paid for Hat		3	00
"	5	" 1 pr. Shoes		4	00
"	6	" Repairs on Cutter		7	00
"	31	" Sundries		17	60
		" Balance		68	40
		(False entry made in red ink to close the account for Jan.)			
			100 00	100	00
Feb.	1	To Balance of cash on hand (black ink)	68 40		
"	3	" Amount rec'd for Labor, 1 mo.	50 00		
"	7	By 1 Suit Clothes		25	00
"	18	" 2 bu. Apples @ 60c		1	20
"	24	" 1 pr. Overshoes		1	60
"	28	" Balance (false entry red ink)		90	60
			118 40	118	40
Mar.	1	To Balance, cash on hand	90 60		
"	3	By Amt. loaned to A. R. Rich		50	00
"	5	To Amt. rec'd for Labor, 1 mo.	50 00		
"	10	By Sundries		18	25
"	15	" 1 doz. Hdkfs.		1	25
"	15	" Expenses at Party		2	50
"	20	To borrowed Money returned	50 00		
"	31	By Balance (red ink)		118	60
			190 60	190	60
Apr.	1	To Balance, cash on hand	118 60		

One month of this work. Pupils should imagine transactions with each other. Keep them familiar with forms of notes, receipts, due bills, etc. Every order, due bill, or note mentioned, should be drawn by pupil. Insist upon neatness, good writing, and correct figures.

Further Transactions:—

January 1, 1897.—Cash on hand this day, \$31.17. (This should be entered on the debit side of cash account.)

January 2.—Paid cash for tax, \$19.

January 6.—Sold four-year-old colt for \$162.

January 11.—Paid James Graham cash on account, \$15.

January 20.—Paid cash for "Mirror and Farmer" one year, \$1.

January 25.—Paid George Allen cash to balance account, \$17.25.

January 26.—Sold for cash one heifer, \$30. Paid Dr. Samuel Johnson for medical attendance, cash, \$10.75.

January 27.—Paid Amos C. Brooks cash on account, \$10.50.

(Balance the account.)

March 1.—Cash on hand this day, \$4,000. Bought of Arnold, Deane & Co., a stock of goods for which we have paid them cash, \$3,257.37; and have paid Anson Davis rent of his store for one month in advance, \$15.

March 2.—Paid sundry expenses, \$25.84.

March 4.—Received cash for sales this day, \$9.50.

March 5.—Received cash for sales this day, \$12.

March 6.—Received cash for sales this day, \$15.75.

March 7.—Received cash for sales this day, \$10.70.

(Balance the account.)

March 9.—Paid cash for bill of goods, \$500. Received cash for sales this day, \$13.50.

March 10.—Received cash for sales this day, \$19.

March 11.—Cash received for sales this day, \$17.50.

March 12.—Cash received for sales this day, \$21.

March 13.—Received cash for sales this day, \$25.

March 14.—Erastus Brown paid cash on account, \$25.

(Balance the account.)

March 16.—Received cash for sales this day, \$9.75.

March 17.—Cash received for sales this day, \$11.

March 18.—Paid cash for bill of goods, \$200. Received cash for sales this day, \$15.

March 19.—Received cash for sales this day, \$17.50.

March 20.—Cash received for sales this day, \$8.

March 21.—Received cash for sales this day, \$13.

(Balance the account.)

March 23.—Received cash for sales this day, \$12.50.

March 24.—Received cash for sales this day, \$16.50.

March 25.—Received for sales this day, \$29.50.

March 26.—Received cash for sales this day, \$9.

March 27.—Received cash for sales this day, \$11.50.

March 28.—Received cash for sales this day, \$12.88.

(Balance the account.)

THIRD MONTH:—

Student in Account with Geo. W. Smith.

1897				Dr.	Cr.
May	1	To Cash loaned him		12 00	
"	2	" 5 bu. Potatoes @ \$.40		2 00	
"	10	" 28 lbs. Sugar .04½		1 33	
"	12	By Cash, paid money loaned			12 00
		" 2 cords Maple Wood 1.75			3 50
		" 1 load Hay, 1875 lbs. 12.00			11 25
June	1	To 1 suit Clothes		15 00	
"	3	By Cash to balance acct.			3 58
				30 33	30 33

In the same form write the following imaginary accounts:

Wheatfield Account.

1896				Dr.		Cr.	
Sept.	1	To Cash for plowing 30 acres	@ \$1.25	37	50		
"	5	" " " harrowing the same		17	50		
"	12	" " " 30 bu. seed wheat	.66	19	80		
"	13	" " " winnowing wheat		1	00		
"	16	" " " drilling in wheat, 5 days	2.50	12	50		
Oct.	1	" " " repairing fence		6	00		
1897							
July	10	" " " harvesting and shocking		35	00		
"	14	" " " drawing and stacking		8	50		
Aug.	10	" " " threshing 574 bu. wheat	.02	11	48		
Sept.	10	By Cash, 500 bu. sold	.80 $\frac{3}{4}$			403	00
		" 74 bu. for seed and family				63	64
Oct.	12	" Cash, 40 loads straw	2.00			80	00
"	"	To Interest at 6 per cent on 30 acres land	50.00	90	00		
"	"	" Balance (red ink). <i>Profit on crop.</i>		307	36		
				546	64	546	64

Let pupils make accounts with cornfield, potato-field, peach orchard, dairy, poultry, etc.

Emphasize the fact that a farmer should keep accounts that he may know what lines of farming are most profitable.

Further Transactions:—

GALON KEENE.

January 4.—Sold him on acct. 2 cords dry wood @ \$4.75 and 1 cord green wood @ \$4.12.

January 8.—He has made for me 1 book case valued at \$20.75 which I buy at 10 per cent discount.

January 15.—Charged him \$3 for use of horse.

January 22.—Bought of him 1 load of hay, 2240 lbs., @ \$12 per ton.

January 26.—Sold him 20 lbs. lard @ 12c, 6 lbs. dried fruit @ 8c, 25 lbs. sugar @ 5 $\frac{1}{2}$ c, and 8 gals. linseed oil @ 95c.

January 31.—Account settled and balance paid in cash.

March 1.—Sold Andrew Bailey 14 yds. sheeting @ 14c, on account.

March 2.—Sold him on acct., 1 doz. linen handkerchiefs, \$3; 1 pr. gloves, \$1.75; 2 prs. woolen hose @ 50c.

March 3.—Bought of him on acct., 2 cords dry wood @ \$5. Sold him on acct., 7 yds. cassimere @ \$2; trimmings for pants and coat, \$3.

March 4.—Sold him on acct., 2 $\frac{1}{2}$ yards table linen @ \$2; 1 yd. Irish linen, 80c.

March 5.—Sold him on acct., 3 yards drilling @ 12c; 3 yards satinnet @ \$1.12; 6 $\frac{1}{2}$ yds. striped shirting @ 20c; 1 pr. suspenders, 50c.

March 6.—Sold him on acct., 30 yards bleached sheeting @ 15c; 20 yds. Merrimac print @ 12c; 7 yds. navy-blue waterproof cloth @ \$1.75. He has repaired shelves for us and charged us on acct. \$3.

March 8.—Sold him on acct., 4 yds. wool carpeting @ \$1.75.

March 9.—Sold him on acct., 7 yds. denim @ 20c; 12 yds. crash @ 18c; 1 umbrella, \$1.25.

March 31.—Settled by cash.

AMOS C. BROOKS.

- February 1.—Bought of him on acct., 1 cooking stove, \$35.50. Sold him 4 cords green wood @ \$4; 1 cord dry wood, \$5.
- February 2.—Bought of him on acct., 500 ft. hemlock boards @ \$18 per M.; 2,000 No. 1 shingles @ \$3; 425 ft. pine boards @ \$30 per M. Sold him one ton hay, \$18; 20 bu. oats @ 70c.
- February 5.—Bought of him 1 bird cage, \$2.25; 1 coffee pot, \$1.
- February 6.—Sold him ¼ cord pine wood @ \$1, and paid him \$10.50 cash on acct. Bought of him 12 yds. denim @ 28c.
- February 7.—Bought of him 2 sap-pans @ \$5.
- February 8.—Charged him for one month's work, \$40.
- February 26.—Bought of him on acct., 12 yds. Merrimac print @ 12½c; 17 yds. bleached sheeting @ 15c; 4 yds. flannel @ 50c. Sold him 1 ton hay, \$18; ¼ bu. beans, \$1.
- February 27.—Bought of him 3 yds. doeskin @ \$1.75; trimmings for pants, \$1.10; 1 pr. gloves, 75c; 1 horse blanket, \$4.25.
- February 28.—Acct. settled with payment of cash.

FOURTH MONTH:—

Teach next use of the day book and ledger, together with the cash book.

This is the form of accounts kept by most small business concerns and is simple and brief. The cash account may be kept in the ledger.

Explain fully the *posting* from the day book to the ledger, and insist upon pupils *balancing* all accounts at the close of any set of transactions.

Day Book.

Ledger page.	Date.	January, 1901.							
	1	J. R. Clark	Dr.						
		To 1 pr. Shoes			2	50			
		" 3 prs Socks	@ \$.12			36			
		" 12 doz. Eggs	.16	1	92			4	78
	2	T. J. Miller	Cr.						
		By 1 bbl. Flour						5	00
		————— Dr. —————							
		To 20 lbs. Sugar	.04½			90			
		" 2 lbs. Tea	.60	1	20				
		" 3 lbs. Crackers	.10		30			2	40
	4	J. R. Clark	Dr.						
		To 10 lbs. Sugar	.04½			45			
		" 1 lb Tea				75			
		" 4 lbs. Coffee	.35	1	40				
		" 12 doz. Eggs	.16	1	92				
		————— Cr. —————						4	52
		By Cash to balance						9	30

Ledger.

J. R. Clark.

Dr.								Cr.			
Jan.	1	To Day Book	Page.	1	4	78	Jan.	4	By Day Book	Page.	1
"	4	" " "			4	52					9
											30
					9	30					9
											30

T. J. Miller.

Jan.	3	To Day Book	1	2	40	Jan.	3	By Day Book	1	5	00
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Further Transactions:—

- Student begins with \$3,000 cash. (Cash Dr.)
- March 2.—Bought of R. G. Clark his entire stock of groceries and provisions for which I pay \$2,834.16 cash. (Cash Cr.)
Rent his store and pay rent for 1 month, \$11. (Expense Account Dr.—Cash Cr.)
- March 3.—Sold F. Fuller, on account, 1 bbl. flour, \$5.25; 100 lbs. meal, 96c; 4 gals. molasses @ 75c. (F. Fuller Dr.) Cash sales today \$14.21. (Cash Dr.)
- March 4.—Sold John Baldwin, on account, 14 lbs. sugar @ 7c; 6 lbs. raisins @ 11c. Sold James Y. Haines, on account, ½ bu. apples @ \$1.20; 2 bu. potatoes @ 63c. Cash sales, \$9.
- March 5.—Sold S. G. May, on account, 1 gal. vinegar @ 42c; 1 bbl. apples, \$4.25; 100 lbs. codfish @ 7c.
Bot. of Thomas K. Peavey, on account, 21 bu. oats @ 30c; 61 lbs. butter @ 30c; 62 lbs. dried apples @ 9c. Paid him cash on account \$20.
Cash sales today, \$14.
- March 6.—Sold Mrs. H. M. Demons, on account, 1 bbl. flour, \$9.75; 18 lbs. lard @ 14c; 25 lbs. rye meal @ \$2 per cwt. Cash sales today, \$21.50.
- March 8.—Sold J. F. Fuller, on account, 2 doz. eggs @ 18c; 8 lbs. cheese @ 18c; 1 box salt @ 42c; 8 lbs. sugar @ 4½c; 1 lb. tea @ \$1.75; 2 lbs. soda @ 8c. Cash sales today, \$17.
- March 9.—Sold James Y. Haines, on account, 6 lbs. butter @ 22c; ½ bu. onions @ \$1.10; 4 cabbages @ 15c; 3 lbs. honey @ 16c. Cash sales today, \$13.50.
- March 10.—Sold Mrs. H. M. Demons, on account, ¼ bu. beans @ \$1; ¼ bu. peas @ 50c; 1 qt. oysters @ 35c. She paid cash to balance her account.
- March 11.—Paid cash for insurance, \$28. (Expense Dr., Cash Cr.)
Bought of John Baldwin, on account, one pair shoes for self @ \$5, and 2 pairs for boys @ \$2.25.
Sold him ¼ lb. pepper @ 20c; ¼ lb. allspice @ 16c; ¼ lb. cinnamon @ 20c; ¼ lb. cloves @ 40c. Cash sales today, \$24.
- March 12.—Cash sales today, \$21.
- March 13.—Bought of Samuel G. Oakes, on account, ½ ton hay @ \$9. Sold Thos. K. Peavey, on account, 1 gal. syrup @ \$1.12. Cash sales today, \$18.

- March 15.—Sold John F. Fuller, on account, 3 lbs. coffee @ 46c; 4 doz. eggs @ 25c; 8 lbs. maple sugar @ 12c. Bought of him 1 suit of clothes on account, \$37. Cash sales today, \$19.
- March 16.—Cash sales today, \$17.50.
- March 17.—Sold James Y. Haines, on account, 1 chicken, 4 lbs., @ 12c; 2 lbs. Turkey prunes @ 15c; 2 gals. kerosene @ 12c; 10 lbs. oatmeal @ 8c.
Paid cash for freight, \$7.95. (Expense Dr.—Cash Cr.)
Cash sales today, \$21.
- March 18.—Sold John Baldwin, on account, 30 lbs. lard @ 18c; $\frac{1}{4}$ bu. corn @ 50c; 1 box Smyrna figs, 50c.
Sold Samuel G. Oakes, on account, 30 lbs. sugar at 7c. Cash sales today, \$26.
- March 19.—Cash sales today, \$29.
- March 20.—Sold Thomas K. Peavey, on account, 10 lbs. rice @ 8c; 2 oz. indigo @ 12c; $\frac{1}{2}$ lb. borax @ 32c.
Sold Mrs. H. M. Demons 1 paper silver gloss starch, 20c; 1 box yeast powder, 12c.
Paid cash for school books for boy, \$3.95. Cash sales today, \$30.
- March 23.—Sold James Y. Haines, on account, 4 lbs. cheese @ 18c; 15 lbs. coffee sugar @ 5c; 1 lb. cream-tartar, 50c; 1 lb. soda, 10c. Cash sales today, \$19.
- March 24.—Sold Mrs. H. M. Demons, on account, 2 lbs. chocolate @ $37\frac{1}{2}$ c; 1 lb. cocoa, 37c. Cash sales today, \$23.50.
- March 27.—Sold Samuel G. Oakes, on account, 1 bu. grass-seed, \$4; 20 lbs. clover seed @ 15c; 1 bu. red-top seed, \$4; 1 bbl. Rockland lime, \$1.
Bought of him, on account, 2 cords dry wood @ \$2.25. Cash sales today, \$25.50.
- March 29.—Sold John F. Fuller, on account, 1 gal. gherkins, 60c; $\frac{1}{4}$ lb. nutmegs @ 42c. Cash sales today, \$24.
- March 30.—James Y. Haines has paid cash to balance his account. Cash sales today, \$28.
- March 31.—Thomas K. Peavey, on account, 1 bbl. crackers, \$2.20.
Paid for sundry expenses, \$19.23. Cash sales today, \$19.

HIGHER COURSE FOR SMALL VILLAGE SCHOOLS.

NINTH GRADE.

FALL TERM:—

Algebra.
Arithmetic, mental.
Botany.
Grammar.

WINTER TERM:—

Algebra.
Arithmetic.
Civics.
Grammar and composition.

SPRING TERM:—

Algebra.
American literature.
Botany.
Reviews.

TENTH GRADE.

FALL TERM:—

General history.
Physics.
Rhetoric.
School law.

WINTER TERM:—

General history.
Physics.
Rhetoric.
Theory and art of teaching, and reviews preparatory to teachers' examination.

SPRING TERM:—

English classics and literature.
General history.
Elements of geometry.
Elements of pedagogy.

GLEANINGS FROM THE REPORT OF COMMITTEE OF FIFTEEN.

Reading:—

"After the second year, one lesson each day for the entire eight years." (p. 89.)

"After the third year, reading lessons should be given to selections from classic authors, with reference to (a) elocution, (b) grammatical peculiarities, (c) literary contents." (p. 89.)

"In composition work, reading lessons will give matter for literary style, geography for scientific style, and arithmetic for a business style." (p. 92.)

Language:—

"The oral grammar lessons from the first year to the middle of the fifth should deal chiefly with the use of language, gradually introducing the grammatical technique." (p. 91.)

"The punctuation, spelling, syntax, penmanship, choice of words, and style should not, it is true, be made a matter of criticism in connection with other lessons, but only in the language lesson proper. But the pupil will learn language all the same, by the written and oral recitation." (p. 91.)

"A frequent error is the practice of making every recitation a language lesson, and interrupting the arithmetic, geography, history, literature, by calling the pupil's attention abruptly to something in the form of his expression." (p. 97.)

"The faulty English should be criticised as showing confusion of thought or memory, and should be corrected in this sense. But solecisms of speech should be silently noted by the teacher for discussion in the regular language lesson." (p. 102.)

"Technical grammar can never educate the child in the use of higher and better English." (p. 48.)

Literature:—

"The chief esthetic training of the elementary school is the study of fine selections of prose and verse. These may be intensified by the use of pictures." (p. 48.)

"Literature is artistic according to the fullness with which it expresses some phase of soul-experience." (p. 47.)

Miscellaneous:—

"Grammar demonstrates its title to the first place in the seven liberal arts by its use as a discipline in analysis, in logic, and in classification." (p. 48.)

"Side by side with language study is the study of mathematics in the schools, claiming the second place in importance of all studies." (p. 52.)

"The higher moral qualities of truth-telling and sincerity are taught in *every* class exercise that lays stress on accuracy of statement." (p. 12.)

"Natural science claims a place in the elementary school, not so much as a disciplinary study, as a training in habits of observation and in the use of the technique by which such sciences are expounded." (p. 69.)

"Thus the pedagogical order is not always the logical, or scientific order. A first course should be given in botany, zoology, and physics, so as to treat of the structure of familiar plants and animals, and the explanation of the physical phenomena as seen in the child's playthings, domestic machines, etc." (p. 69.)

"The overcultivation of the verbal memory tends to arrest the growth of critical attention and reflection." (p. 49.)

Staple branches in their order:—"Grammar, literature, arithmetic, geography, and history are the five branches upon which the disciplinary work of the elementary school is concentrated." (p. 67.)

"Most practical knowledge is knowledge of human nature." (p. 47.)

SUGGESTIVE ORAL LESSONS IN PHYSIOLOGY.

I.

OUR FOOD.

Children, did you ever wonder how it is that these bodies of yours do not seem to wear out, though we are so constantly using them; and can you think of any article of clothing that keeps fresh and new after you have worn it a long time? Well, these bodies of yours *are* constantly wearing out, only every little particle of worn-out matter is as constantly replaced by new ones, so you do not realize it. Besides, in childhood enough extra matter is furnished so that you can continually grow larger.

Isn't it strange to think that the meat and potatoes and bread, in fact everything you eat, is turned into bone and nerve and muscle? And yet, if we can only get the food into the blood, each part of the body will pick out of it exactly what it needs to make it strong, just as you would select from a basket of fruit that which you like best. Let us follow this food in its journey through the body.

First, it goes into your mouth where your sharp little teeth grind it up fine, if you do not eat too fast; and you should always remember not to, for the spittle of the mouth helps to prepare the food for the blood and should be well mixed with it before the food is swallowed. From the mouth the moistened food passes through a long tube into the stomach, which is a little lower down than your heart. You all know where the pit of your stomach lies, and that is its center.

The stomach is like a large bag with a muscular coating and has a queer little valve at the bottom end which will not open until the food is digested and ready to pass out; then it lets it flow through into the bowels. As soon as the food gets into the stomach, this muscular coating begins to contract, first lengthwise and then crosswise; and so keeps churning the food to and fro and mixes it thoroughly with a juice that is more powerful than the fluid in the mouth. The blood vessels of the stomach now begin to dissolve some of the food and carry it away, but most of the pulpy mass goes from the stomach to the intestines to be mixed with still another juice. When it is thoroughly digested, the dissolved food will be carried by the blood all over the body, and the little worn-out particles it replaces will be taken up and carried off by the kidneys, lungs, and skin. You wonder how this can be done, and I will explain some other time. The poisonous gas that I told you was breathed out from your lungs, comes from these worn-out particles.

The stomach churns away from two to four hours after every meal, and then it needs to rest awhile before the next. This is why girls and boys should not eat much between meals. If you do, the stomach gets tired and you do not feel hungry when meal time comes. Irregular habits and eating too many sweetmeats make persons have dyspepsia, and they suffer continually.

When you think how many different parts of your body have to be fed, you will not wonder that we need three meals a day, nor that so many different kinds of food are eaten. Some kinds make bone; others make muscle by which the bones are moved; others make the nerves which carry the messages to the brain so that your muscles move when you wish; and still others make the flesh that cushions your bones and keeps you so plump and pretty. Children should obey their parents as to what they eat, so that they will get the right amount to make them strong and healthy. It is not safe to eat too much of one thing simply because you like it.

When you stop to think what a wonderful body this is that God has given to each of you, I hope you will realize how careful you need to be that it is kept healthy and not injured by any bad habits; and of all bad habits, improper eating is one of the most injurious.

Now, I will put a few questions on the board and see how many of you can answer them tomorrow:—

1. Why should we eat slowly?
2. Why should our meals be regular?
3. Why do we eat so many kinds of food?
4. What is the stomach like?
5. Where is it situated?

6. How long does it churn the food?
7. How is the food carried through the body after it is digested?
8. What becomes of the worn-out particles?
9. What causes dyspepsia?
10. How many meals do we need a day?

II.

OUR DRINK.

We know that the liquid part of the blood carries the food we eat to all parts of the body, but we have not learned where the liquid itself comes from. It comes from the water that we take into the stomach, and water is found in almost every thing we eat as well as drink. You can see the water in fruit, and even bread and meat and potatoes contain some water.

Three-fourths of all your body is made up of water; and it is said that, if all the liquid could be dried out of it, the body would shrink up so as to be no larger than a hen's egg. Perhaps this is somewhat exaggerated, but at least it would be very small; so it is not strange that you get so thirsty, and you could live much longer without eating than without drinking.

As the body constantly needs fresh particles of food to build it up, so the blood is continually calling for fresh water to take the place of that which is passing off from the body. You know when you run fast or play hard, how the little drops of sweat pour out over the skin, and then how thirsty you become; it is because the blood must have more water to take the place of that which has oozed out through the skin. Water is also sent out through the kidneys and lungs. Your breath looks like steam on a cold morning because of the watery vapor it contains.

You can readily see that it is just as necessary for health that our drink should be pure as that our food should be wholesome, and people should never drink water from a well which is near any filthy place. Water that flows through lead pipes is apt to be unhealthy and should always be allowed to run awhile before drinking.

Pure water and milk are the best drinks, for tea and coffee affect the nerves and often cause headache, especially with children. Ice-water also is not very good for the stomach and should never be drunk when you are very warm.

I need not tell you that alcoholic drinks are always injurious; and the reason the drunken man's throat is so parched is because the body is calling for pure, fresh water in place of the poisonous liquor. Besides, when the alcohol gets into the stomach, it acts upon the juice that I told you helped to digest the food, so that it cannot dissolve it, and the stomach becomes very much inflamed. That is why such men are almost always sick at the stomach the next morning after they have been drunk.

There was once a man named Alexis St. Martin, who was taken to a hospital with such a large wound in his side that the physicians could look in and see his stomach, and so they gave him a drink of alcohol and watched to see the effect. Very soon the delicate lining of his stomach grew red and inflamed, just as your eye might do if pepper were thrown into it.

1. Why do we get thirsty?
2. How much of your body is water?
3. Is there any water in your food?
4. What are the best drinks?
5. What about ice-water?
6. How does alcohol affect the lining of the stomach?
7. How does it affect the juices of the stomach?
8. Which could we do without longer, water or food?
9. What is sweat?
10. Why, on a cold morning, does your breath look like steam?

III.

THE SKIN.

Today we will talk about the soft, satiny covering that fits our bodies like a smooth glove and yet it is so elastic that it is never too tight nor too small.

Probably you do not know that you really have two skins, but there is an outer one called the scarf skin and beneath it the true skin. You can run a pin through the scarf skin, because it has no nerves, and it is this skin that puffs up when you have a blister. The true skin is full of nerves and blood vessels; if you press the pin into this, it instantly hurts and a little drop of blood flows out. The outer skin protects this tender inner skin, and yet is so thin that the nerves can feel through it when you touch anything and so carry the message directly to the brain.

This outer, or scarf skin, also serves another very important purpose. Everywhere in it there are little holes or pores that are the ends of tiny tubes running down into the skin, and through these pores much poisonous matter flows out from the body. About a pint of perspiration passes off each day, though generally it dries as fast as it comes to the surface and you do not notice it; but in very warm weather, or when you are heated by exercise, you can see this perspiration on the skin. You should never throw off your coat and sit down to cool off after playing hard, for then the little pores close up so suddenly that the waste matter cannot flow out and you have what you *call* a cold. It is only the poison that stays in the blood instead of passing off through the pores.

If your body should be covered over with a paste so that all the little pores were closed, you would die. Once upon a time a little boy was gilded all over so as to look like a gilt cherub in a play; very soon he felt sick, and in spite of all they could do, died before morning. This sweat that carries so much matter out of the system, forms sort of a coating as it dries on your bodies, and that is why you should bathe at least once or twice each week; and you should rub the skin briskly after each bath so as to get up a healthy glow. I suppose you all want to grow beautiful, and no one can be that without a healthy skin.

Another thing besides bathing that makes a healthy skin, is plenty of exercise. Don't you know how rosy your cheeks are and how bright you look when you come trooping in from the play-ground? The blood circulates more rapidly, so carries more oxygen and other food to the nerves and muscles, and you feel strong and well. So exercise is not only good for the skin, but for every part of the body; and if you do not play too long and do not cool off too suddenly, you will be much healthier for plenty of out-door exercise. Morning is the best time for play, when the air is fresh and your bodies well rested by a good night's sleep. And that reminds me of the old saying, "Early to bed and early to rise, makes a man healthy and wealthy and wise."

Swimming is a healthy exercise, if you do not stay in too long; but, boys, remember that it is dangerous to go in when too tired or too warm or directly after a meal. Many people are drowned every year by forgetting this and being taken with cramps while in the water.

One more thing you should remember regarding the skin is that everything which injures the stomach, hurts the skin and keeps it from doing its work well; thus alcohol makes the drunkard's face so red and blotchy, tobacco causes people to grow sallow, and over-eating affects the skin by causing roughness and pimples.

1. How many skins have you?
2. What are their names?
3. Which one has nerves and blood vessels?
4. What are the pores of the skin good for?
5. Why do we need to bathe often?
6. Why is it dangerous to cool off suddenly.
7. Tell about the little boy in the play.
8. What time of day is best for exercise? Why?
9. When is it dangerous to go in swimming?
10. What does alcohol do to the skin?

IV.

THE BONES.

Now that we have learned why we eat and drink, let us learn a little of the bony frame-work which supports our bodies and is more remarkable than anything ever built by the hand of man.

There are 208 bones in it of all sizes and shapes. Only think how many! And then these bones are held in place by elastic bands or tendons, are furnished with muscles to move them, and are fitted together at the joints so nicely that they can move in various directions. Some of the joints, as your elbow and knee, swing back and forth like the hinges of a door; in others, one bone has a round end fitting into a little socket in a second bone, so the joint can move in any direction. The hip is a perfect ball and socket joint. In every joint a little fluid is poured out to keep it well oiled so that it will not become stiff, and there are also little cushions of cartilage tucked in between the joints to make them springy. Your back-bone or spine instead of being made in one piece, has 24 rings of bone, between each of which are little cartilage cushions, so that jumping does not jar your brain at all.

The bones are made of two kinds of material; partly of lime to make them hard and firm, and partly of a jelly-like substance to make them tough and elastic. Children's bones contain more of this soft matter than do those of older people, and do not break so easily. Children's bones are like green twigs, bending very easily; and if you wish to grow up straight and tall, you must remember to sit up straight both in school and at home, lest your body become crooked while you are growing. Have you not seen trees that leaned away over to one side just because the wind kept them bent over that way when they were small?

Some of the long bones are hollow and filled with marrow so that they shall not be too heavy; and if you pick up the bone of a dead animal, you will find it full of tiny holes. These are the places where the little blood vessels ran; for the bones, like the muscles, must be constantly fed, and when you are growing, they need a great deal of nourishment.

Then, too, this bony frame is so wisely arranged. At top there is a skull, made like a strong box to hold the soft brain. This rests on the slender neck in such a way that you can turn it up, down, or around at will. Next comes the barrel shaped body that has two large chambers in it; the upper one holding the heart and lungs; the lower containing the stomach, liver, and bowels. The spine forms the back of these chambers, and the curved ribs are the sides, while at the upper and lower corners the arms and legs are skilfully joined on, the arms to wait upon us, and the legs to carry us about wherever we wish to go.

Truly, this is a wonderful, wonderful body which has been intrusted to your care; and the older you grow, the more you will learn of its curious structure. I hope you will appreciate its value and take good care of it.

1. How many bones in the human body?
2. How are they held in place?
3. How are they moved?
4. What sort of a joint is the hip joint?
5. How are the joints oiled?
6. Of what are the bones made?
7. Why are the long bones filled with marrow?
8. How many rings of bone in the spine?
9. Why does jumping not jar the brain?
10. Why should children sit up straight?
11. How is the brain protected?
12. Describe the barrel shaped body.

V.

THE BRAIN.

Now, children, did you ever think what wonderful bodies you have, or that your head is just like a little telegraph office? The brain is the telegraph instrument; and there are tiny nerves running all over your bodies, connecting every part of it with the brain, just like telegraph wires running between different cities.

When you get a cinder into your eye and it hurts you, it is only one of these little wires telegraphing a message to the brain, and then the brain sends another message to your hand telling it to get the cinder out. Just so if you are holding your hand too near the stove and it begins to smart; it is only the little nerves of feeling telling the brain about it, so that the brain can send a message along the nerves of motion and make you move your hand away in time to prevent burning it. And so everything you hear or see or feel, has to be telegraphed to the brain or you wouldn't know anything about it.

Now these little telegraph wires are made up of very delicate little threads or fibers, and so are very easily injured; and if we would have them keep healthy so as to work well, we must be very careful to keep our bodies healthy by exercise, pure air, plenty of sleep, and especially good, wholesome food. When we are sick, these little wires get out of repair, and sometimes the doctor's medicine will not mend them.

Often we see a person who is blind or deaf just because the telegraph lines that run to the eye or ear are out of repair and will not work. Sometimes you see a drunken man staggering along in a line as crooked as a rail fence or perhaps falling down; and then, children, it is because the alcohol he drank has paralyzed the delicate nerves, and they cannot carry messages to the brain correctly. He cannot see straight, he cannot put his feet down where he should, he cannot keep his balance, all because he has put something into his stomach that injures the little telegraph wires. If he keeps on drinking, very likely the nerves will be so injured that they cannot work at all and he will die. Brandy, gin, rum, whisky, wine, beer, and even cider, contain alcohol and so are harmful.

Another poison which men and even boys often use, paralyzes the nerves and hurts the brain just as much as strong drink. I think you have already thought what it is, for you have heard so much against the use of tobacco, and you all know that it makes everybody deathly sick when they first begin its use. And no wonder, for it contains a poison called nicotine which is so deadly that a single drop put on a dog's tongue will cause instant death. Don't you think it queer that people will smoke or chew such a poison, and isn't it strange that boys seem to think they look more manly when their teeth are all yellow with tobacco or their noses made into smoke-stacks?

Cigarets are the vilest of all forms of tobacco, because they are made of the odds and ends, and even of the stumps of half-smoked cigars, oft-times picked out of the gutter. Besides, they are flavored with opium, which is another deadly poison; and they not only stunt the growth of any boy who is so foolish as to use them, but also paralyze the little telegraph wires and so dull the brain, in time making him a stupid scholar. They also injure his eyes, making them weak and inflamed. But one of the worst effects of cigaret smoking is that they deaden his conscience the same as his brain, so that a boy becomes unable to say "No" when he is tempted to do wrong, and often becomes a very bad boy without being able to help it.

There is a dreadful disease called the "smoker's cancer," which begins with a small ulcer on the lip or tongue, caused by having the poison of the tobacco so constantly touching it, and this grows to a cancer that eats its way through the tissues of the mouth into the throat and lungs, causing a painful death.

So you see this smoking which is often looked at as only a bad habit, is really a very dangerous practice; and you should not put a cigar into your mouth any more than you would put your finger into the fire.

1. What is the poison in tobacco called?
2. How much of this poison instantly kills a dog?
3. How does tobacco always affect a person at first?
4. What is the vilest form of it?
5. Of what are cigarets made?
6. How does tobacco affect a boy's body?
7. How does it affect a boy's brain?
8. How does it affect a boy's conscience?
9. What is the "smoker's cancer?"
10. What part of the body is like a telegraph office?
11. What are the little wires called?
12. Can you see them? Are they found in all parts of the body?
13. How do you know when they are at work?
14. Do they carry messages to the brain? Tell about some of them.
15. What happens if they get out of repair?
16. How are they kept in repair?
17. How does a drink of whisky affect them?
18. Why does the prick of a pin hurt us?
19. Can a man who is dead-drunk feel the prick of a pin?

VI.

THE TEETH.

The other day I told you that you should chew your food well before swallowing, and now let us think a little about these sharp little grinders that lie so snugly in their red cushion, like pearls in a crimson casket.

The teeth are most wonderful little bodies, and their hard, shining surface is to protect them, as well as to keep them sharp and able to grind your food fine; for, though they are so hard on the outside, on the inside they are pulpy and even have little blood vessels and nerves running through the center so that they can be kept alive like the rest of the body.

When the bright enamel that covers them gets injured, the air and the fluids of the mouth creep into the crack and make the tooth decay; and when the air strikes the little nerve in the center, you suffer from toothache. You should never crack nuts with your teeth, nor bite very hard things, for fear of injuring this enamel. Eating too much candy is apt to make them decay, and also if you do not brush them every day, for then the acid in your food collects upon them. Then, too, dirty looking teeth are quite as bad as dirty faces, and you would not think of going to school without washing your face.

When you were babies you did not have teeth, because you had no solid food to chew; but before you were a year old, the tiny white teeth began to peep through the red gums, and by the time you were two years old, you had ten brand-new teeth on each jaw; but these were only baby-teeth and not large enough when you became big girls and boys, so they are now gradually giving place to a new set, and by the time you are twelve or thirteen you will have at least twenty-eight new teeth. These are the teeth you must be so careful of, for you can never have another set unless they are false ones, and no teeth are ever so comfortable as our natural ones, besides not looking nearly so well.

Your front teeth are sharp and thin so as to bite off your food; and there is no excuse for you to cram your mouth full of large chunks; your back teeth are broad and rough on top so as to grind your food into little bits, and there is no excuse for you to swallow your food whole; if any one does this because he wishes to eat fast, he deserves no pity if he should have dyspepsia.

If a small cavity comes in your tooth, you should have the dentist fill it before it gets too large; and if any tooth is too badly decayed to be filled, it should be taken out, for decayed teeth are very unhealthful besides giving a disagreeable smell to the breath.

Now, children, if there is one among you who has not been in the habit of brushing his teeth every day, I hope you'll go straight home, ask for a tooth brush, and see how shining clean you can keep your teeth hereafter. It is a good plan to brush them a little after each meal.

1. Why does a baby have no teeth?
2. Why are teeth covered with a hard enamel?
3. Why is it wrong to crack nuts with the teeth?
4. What causes tooth-ache?
5. Why do we have a second set of teeth?
6. What becomes of the first set?
7. What shape are the front teeth? Why?
8. What shape are the back teeth? Why?
9. How often should we brush the teeth?
10. What if a small cavity comes in your tooth?

VII.

THE BLOOD.

I told you that each part of the body selects from the blood just the food that it needs, for the solid food is first dissolved and then taken up by the body very much as your sponge soaks up water. But I must first explain about this bright red fluid that flows through every part of your bodies. One-twelfth of your weight is blood, and you know if you cut any part of your flesh, or even prick it with a pin, that the little drops at once ooze out.

The blood is often called the "river of life," and it goes round and round in your bodies from the heart to the lungs and back again, then to your hands and feet, thence once more to the heart in sort of a circle, and so we speak of the *circulation* of the blood. When it goes out from the heart, it flows through arteries; when it returns, it flows through veins. You may think of the veins and arteries as two streams flowing in opposite directions; and everywhere are tiny canals no bigger than a hair connecting them, so that the blood can get from one stream to the other. Hold up your hand in the sunlight and you will see how red it looks just because of this net-work of tiny canals.

Now if you should put a drop of blood under a microscope you would see that the red color is caused by little, round, flat particles, so small that three thousand of them side by side would measure only an inch. These tiny bodies are called corpuscles. That is a long word, so I'll put it on the board where you can see it. A few of them are white, but it is the red ones that act as food carriers for all parts of the body.

These little red corpuscles go floating along through the veins and arteries just like little rubber boats, for they can stretch out long and thin when they want to crowd through the narrow channels and locks. First they go through the arteries to the lungs which you know are filled with air, and each corpuscle takes from this air as big a load as it can carry of a certain gas called oxygen. I will write this word under corpuscle. Oxygen is one of the main things that strengthen the body, and so these little red boats float down from the lungs through your limbs and also up to your brain, filling all these little hair-like canals, carrying the oxygen to the nerves and muscles and other tissues, and making them strong and healthy. Then the blood flows through the veins back to the heart again, to start out on another round of the body.

But oxygen is not the only thing the body needs. It must have sugar and starch and lime and iron and various other things, and all these are carried in the liquid part of the blood; but you cannot see them any more than you can see a lump of sugar after it is dissolved in a tumbler of water. So, children, you see that it is through the blood that all parts of the body are kept in repair and, therefore, how necessary it is that it should be kept pure. Nothing poisons the blood more quickly than the alcohol in liquor, and the nicotine in tobacco. Don't you know how inflamed an intemperate man's eyes look? It is because the nerves are paralyzed and the blood vessels get too full and are injured; for this reason, too, the face becomes covered with pimples and blotches.

There are other things that poison the blood, but I will speak of them some other time. Next time I will tell you how this "river of life" is kept so constantly flowing.

1. What is the "river of life?"
2. How much of your weight is blood?
3. What is meant by the circulation of the blood?
4. The blood flows out from the heart through what?
5. Back to the heart through what?
6. What are the little red disks that give color to the blood called?
7. What gas do they carry to the nerves and muscles, and where do they get it?
8. Is there any food in the liquid part of the blood?
9. Can you see this food in the blood? Why not?
10. How do alcohol and tobacco act on the blood?

VIII.

THE HEART.

Now, children, we will see how it is that the blood is always kept flowing through your veins and arteries. You have often watched the great wheel of the wind-mill and seen the pump sending forth its stream of water. Well, your heart is just like a little pump, only it does not need any wind-mill to keep it going.

This little pump is made of muscular tissue, and in form and color looks something like a big strawberry about as large as your fist. It has four chambers in it with tiny doors between called valves. Two of these chambers are like little ante-rooms for the larger rooms. One of the large rooms is always full of venous blood, or that which flows through the veins; the other is always full of arterial blood, or that which flows through the arteries.

An all-wise Creator, our Heavenly Father, gave this little heart the power to draw the muscular walls of these chambers inward so as to make the blood gush out, just as the juice spurts from an orange when you press its walls together. It is this constant contraction of the heart that causes its beating, and when you run or exercise, it beats faster so that the blood may flow faster and carry food to all those muscles you are using so constantly.

Let us follow the course of the blood around through your bodies just once. We will begin at the chamber full of arterial blood, or the right side of the heart. The walls on that side contract and the little valve opens, letting the blood flow to the ante-room on that side, from which it passes into the arteries and goes to the lungs. After the little corpuscles get their load of oxygen, the blood comes quickly back to the heart and enters the left chamber so that it can be again pumped out, this time into all parts of your body, carrying food to every portion. When the blood goes out, it is a bright red; but when it comes back through the veins it is a dark color, because it is full of worn-out particles of tissue that it has taken up in exchange for the food it carried; then it has to go to the lungs to be made pure again.

Just think how the heart must have to work to pump the blood away up to your head! Why, it is like making water run up hill; and this heart that works so hard never rests or sleeps, but works night and day. Don't you think you would be very foolish to put anything into your stomach that would weaken the walls of this little pump on which your very life depends? Yet that is exactly what a person does when he drinks anything containing alcohol, for it makes the walls of the heart soft; sometimes so soft that you could push your finger into it as you would into a rotten orange, and then death is the result.

Tobacco also hurts the heart, but in a different way. The nicotine paralyzes the nerves so that the heart becomes unsteady and beats irregularly. There is a heart disease known among doctors as the "tobacco heart," and it is almost as bad as the "smoker's cancer."

Our next talk will be about the queer pair of bellows lying just above your heart.

1. Why is the heart like a pump?
2. Of what is it made, and how does it look?
3. How many chambers in it?
4. What makes the blood flow out of the heart?

5. Why does it beat faster when you run?
6. Where does the heart first send the blood?
7. Why is it sent to the lungs?
8. Where does it next go?
9. How does alcohol affect the heart?
10. What is meant by a "tobacco heart?"

IX.

THE LUNGS.

I wonder how many of you children have ever seen a pair of bellows! The blacksmith uses them to blow his fire when he wishes to brighten it up quickly; and if you watch him, you will see just how the air rushes into your lungs, for that is the little pair of bellows I told you we would talk about.

Perhaps you have all seen the bladder of some animal, and you boys have delighted in blowing it up so as to make it look like a little balloon. Well, your two lungs are covered with just such an elastic skin, and they are full of little air-sacs like tiny bladders; when you take a long breath, the air rushes into the lungs just as it does into the bellows, and you can feel your chest expand as the little air-sacs are filled. Then when the breath rushes out, your chest falls in again.

You remember that the oxygen of the air is one kind of food that the little blood corpuscles carry all over the body, and so you know plenty of air is just as necessary as the food you eat. There is such a thin skin between the blood vessels and the air cells that the oxygen can pass right through it, so if you keep your lungs full of pure air, the corpuscles can always get plenty of oxygen; but if you stay in a close, hot room, your head begins to ache and you feel sleepy, because the air is impure and you do not get enough oxygen.

You should be especially careful to have plenty of fresh air in your sleeping rooms, because you stay there so many hours; and you should never sleep with your head under the bed-clothes, for when the air comes out from the lungs it contains a poisonous gas taken from the worn-out tissues of the body, and so it is very unhealthful to breathe the same air a second time.

You should fill your lungs with good, long breaths on your way to school, only be sure to breathe through your nose with closed mouth, for breathing through the mouth too much will cause throat trouble.

One thing girls should never do is to wear tight dresses, for then the lungs have not room enough for the little air cells to be filled. You know there is a dreadful disease called consumption, and it is caused simply by the air-cells becoming diseased. Sometimes this happens when you do not dress warm enough or sit in a draught or carelessly run from a warm room into the cold air without your wraps; sometimes intemperate persons have what is called alcoholic consumption, because these air cells have been injured by the alcohol that you know is so poisonous; and sometimes this consumption is caused by the "smoker's sore throat," for in the same way that nicotine injures the lips or tongue and makes a cancer, so it irritates the delicate lining of the throat and causes a dry, hacking cough that finally affects the lungs. Cigarets affect the throat more quickly than cigars.

1. What covers the lungs?
2. What do they contain?
3. Why is it unhealthful to sleep with the head under the bed-clothes?
4. Why do we need so much fresh air?
5. Why does your head ache in a close room?
6. Why should one's dress never be tight?
7. What is consumption?
8. What kind of consumption do intemperate people have?
9. How does tobacco cause consumption?
10. Why should you not breathe through the mouth?

Suggestion:—

A fine illustration for this lesson can be made with the lungs of a sheep. Wash in water and dry, then tie the trachea tightly about a small tube. Put the mouth to the tube and force air through it, when the lungs will slightly expand, collapsing as soon as the force is removed.

X.

THE MUSCLES.

Well, little girls and boys, I am glad to see by your bright eyes that your telegraph offices are all in good working order this morning, and I am now going to tell you some more about those wonderful little nerves we talked of. I want you to know how it is that they can make you snatch your hand away from the hot stove, or put it to your eye to remove the cinder.

Of course you know that your arms and legs, your fingers and toes, your mouth, your eyes, your heart, all move by means of muscles. Raise your hand to your shoulder, and you can both see and feel the action of the muscle that lifts it. Move your fingers and you can see the play of the cords that run from the muscles in your arm to your finger-ends. You have about 500 of these muscles in your body, and they are long, short, flat, round, and even fan-shaped; but all are made up of fine, dark red, thread-like fibers bound together like skeins of thread. With each little strand one of the telegraph lines is connected, so that the brain in a second can send a message to the whole muscle, telling just what motion you want to make. Isn't that wonderful?

These muscles are just like the nerves about being injured by ill health. Don't you know how weak a person gets when he is sick? It is because the little muscular threads are injured. Now you will understand why the drunken man's hand trembles so, and why he falls down so easily; and have you never noticed that a smoker's hand generally trembles when he is lighting his pipe? If you want to have strong muscles and steady nerves, don't ever drink or smoke or chew; for the alcohol and tobacco shrink up and harden the tender fibers so that they cannot work well.

There is another queer thing about these nerves and muscles; that is the way they are fed, for you must know that with so much work to do they would soon wear out if they were not constantly strengthened. It is because your bones and muscles and nerves are in need of refreshment, that you get so hungry. A great writer has said "Boys eat as if their legs were hollow;" and it is no wonder, when we come to think how many motions all you boys make every day and how busy you keep every nerve and muscle in your lively bodies; but, boys, if you want to be first-class hands at football or base-ball or any of the nice games that big boys play, don't overload your stomachs, and don't fail to eat good, nourishing food at regular hours.

I must stop now and put some more questions on the board for you.

1. What do we call that part of our bodies with which motions are made?
2. Are there many of them?
3. What shape are they?
4. Of what use are they?
5. Can you see them move?
6. Can you see the nerves move?
7. Are the muscles strong?
8. How do they know when to move?
9. How do alcohol and tobacco affect them?
10. In what respect are the nerves and muscles just alike.

XI.

THE EYE.

By this time, children, you must begin to understand what is meant by the saying that we are "fearfully and wonderfully made." But the *most* wonderful and delicate organ of the body we have not yet talked about, and that is the eye.

If you notice, you will see what great care has been taken to protect the eye. It sets well back in a strong, bony socket; the eye-brows overhang it so as to keep the perspiration of the forehead from flowing into it; the nose helps to ward off blows in front and the lids with their fringe of lashes are like thick curtains that close over the eye the instant anything tries to get into it.

You are too young to understand how the eye is made; but you can see the little round window through which the light enters, and you know it is called the pupil of the eye. Now the light passes through this window into a small, round, dark chamber whose walls are covered with tiny nerves; and in some way which no one exactly understands, these nerves imprint on the brain a picture of the many things going on all about us, and we say we see them.

One of the many wonderful things about the eye is the blue or gray or black ring that gives it color; for this ring has the power to draw closer together when we go into a strong light, making the pupil smaller and thus preventing too much light from entering the eye. If you go into a dark room, it draws back to let in more light, and this is why the pupil of your eye looks larger at night.

As you grow older and come to understand all about the different membranes and fluids of the eye, and what a delicate organ it is, you will wonder there are not more blind people. Only think what a dreadful thing it would be always to live in the dark and never to see the blue sky or bright flowers or the faces of our friends! And yet many people bring this terrible fate upon themselves by being careless about their eyes when they are young. Let me tell you of some of the things you must never do if you want good eye-sight.

1. Do not cry when you can help it.
2. Do not look steadily at the sun or a bright light.
3. Do not squint.
4. Do not rub your eyes.
5. Do not hold your book or slate too close.
6. Do not read lying down.
7. Do not read at twilight or by a poor light.
8. Do not use tobacco in any form, especially cigars.
9. Do not drink any alcoholic liquor.

This is quite a long list of things to remember, but I will write them on the board and then we will read them over together until you can tell them every one; and then I hope the eyes of my girls and boys will always keep bright and strong.

XII.

THE EAR.

This morning we will talk about the ear, a part of the body scarcely less curious than the eye.

The outer ear is simply a funnel to catch the sounds and carry them to the inner ear. You often see a deaf man curve his hand about his ear so as to make this funnel larger, in order to catch more of the sound.

The little opening in the ear is supplied with a bitter wax which keeps any insect from falling very far into it. When too much of this wax gathers, it comes out in little lumps; but you should never take any sharp instrument to remove it, for you might injure the delicate lining of the ear and cause inflammation. You know how badly your ear sometimes aches when it is inflamed by cold.

Sound is really made by little waves, or vibrations of the air; and when a sound enters the ear, it strikes against a thin skin or membrane that is stretched across the opening just like the covering on a drum head, and so it is called the drum of the ear. If you beat on a drum, it gives out a loud sound, and so this little ear-drum carries the sound along to the inner ear.

Like the eye, the inner ear is made up of a number of curious parts which you cannot yet understand, but it has some more of these same tiny nerves to carry the messages to the brain whenever any sound wave strikes them. These nerves are really the most important part of the ear, for if all the other parts were healthy and the little telegraph wires were injured, you could not hear. You know I told you deafness was often caused by injury to the nerves; but people are also frequently made deaf by the thickening of the membrane which lines the ear. There is a little tube leading from the middle ear to the throat; and so throat diseases often cause deafness, for the inflammation can easily extend through this tube to the ear. Alcoholic

liquors dull the hearing in this very way, because they inflame the throat; alcohol also hurts the nerves of hearing.

Blows on the ear, or loud shouting close to it, are apt to cause inflammation and so are dangerous.

1. Of what use is the outer ear?
2. Why does a deaf man put his hand to his ear?
3. Of what use is the ear wax?
4. Why is it dangerous to pick it out with a sharp instrument?
5. What is the drum of the ear?
6. How does sound reach the brain?
7. What connects the ear and throat?
8. How does throat disease cause deafness?
9. Why are blows on the ear dangerous?
10. How does alcohol injure the hearing?

APPENDIX.

MICHIGAN HISTORY.

During this grade the history of Michigan should be studied with its geography. If time for the recitation in both crowds the program, they may be alternated.

1615—Possibly visited by Champlain.

1634—Visited by Jean Nicolet at Mackinac.

1641—Visited by Jesuit missionaries.

1660 to 1668—Visited by various missionaries. Mission established at Sault Ste. Marie—three years later at St. Ignace.

1701—Fort Ponchartrain founded at Detroit by Cadillac—Detroit the capital of the French Possessions.

1760—Became a British province—principal business, fur trade.

1763—Pontiac's conspiracy—character of Pontiac. Plan of attack—story of the Ojibwa Indian girl. The attack—Bloody Run. Massacre of Michilimackinac.

1769—Death of Pontiac.

1787—Ordinance creating the Northwest Territory—the "Six Articles."

1796—British evacuation of military posts.

1805—Michigan made a territory—Gen. Wm. Hull governor.

1812—*Second War with England*—Michigan menaced on one side by Canada, on the other by Indians. July 16, Detroit surrendered, the only condition being that private property be protected. July 17, Mackinac surrendered.

1813—Gen. Cass appointed governor. His energy—made treaties with Indians, always just ones; divided the territory into counties (note how many of the counties bear the names of prominent men); surveyed and opened the lands for settlement (about 1818); visited personally the heart of the Indian country, traveling thousands of miles; published (1823) "Inquiries concerning the Indians."

Perry's victory on Lake Erie.

1817—First permanent newspaper—"The Detroit Gazette," \$5 a year.

1831—Gov. Cass appointed Secretary of War.

(Cass was further honored by appointment in 1836 as Minister to France, in 1845 and 1849 was U. S. Senator from Michigan, and in 1844 and 1852 was democratic nominee for president.)

1832 to 1834—Detroit scourged by cholera—Gov. Porter a victim.

1835—*The Toledo War*,—cause territorial boundary dispute. Proclamation of Gov. Lucas, of Ohio, ordering troops to take possession of disputed strip; sending of Michigan troops by acting Gov. Mason—no bloodshed. Proposition by Congress to cede to Michigan the upper peninsula for the release of the disputed strip.

May—Adoption of a constitution and application for admission to the Union.

October—State officers elected, followed by the refusal of Congress to admit to the Union until the settlement of boundary dispute.

- 1836—December—Acceptance by the “Frost-bitten Convention” at Ann Arbor of the proposal of Congress mentioned above.
- 1837—January 26—Michigan admitted as the 26th state, thus doubling the original thirteen. Plans at once made for extensive internal improvements and a loan negotiated for \$5,000,000 (an enormous sum in those days) for improvement of rivers, construction of canals, and building of railroads—the beginning of Michigan Southern and Michigan Central railways. Passage of general banking law—its provisions of safety to the public easily eluded, resulting in suspension of specie payment.
- Provision that every sixteenth section in each organized township be set apart for school purposes. Rev. John D. Pierce, first Superintendent of Public Instruction, presented to the State legislature the plan for our educational system, modeled after the Prussian public school system.
- 1847—Capital changed from Detroit to Lansing.
- 1850—New constitution.
- 1852—Congressional land grant of 750,000 acres for construction of canal around St. Mary's Falls.
- 1853 to 1855—Construction of St. Mary's Falls canal—cost \$999,802.46. (7,000 feet long, least width 108 feet, depth of water 16 feet.)
- 1860 to 1865—*Michigan in the Civil War*.—Austin Blair, the “War Governor,” Zachariah Chandler the “War Senator of Michigan”—93,700 Michigan soldiers, of whom over one-sixth perished in defense of their country.
- 1873—Corner stone of the new capitol laid—cost of building \$1,500,000.
- 1876 to 1881—St. Mary's Falls canal enlarged and new lock built—cost \$1,500,000.
- 1892 to 1894—Second great lock built—cost \$5,000,000. Over 16¼ million tons passed through this lock during 1896, sufficient tonnage to load a freight train over 5,000 miles long, or reaching nearly from Chicago to San Francisco and back, exceeding the tonnage of New York harbor.
- 1897—President Angell, of Ann Arbor, appointed United States minister to Turkey.

Note.—The following is taken by permission from the advance sheets of Silas Farmer & Co.'s “Michigan Book—A Cyclopedia with sectional county maps,” sold at the low price of \$1.00 with map, 50 cents without. This cyclopedia of Michigan will soon be published, and will be a valuable work for anyone and especially for a teacher. For further particulars address Silas Farmer & Company, Detroit.

ALPENA COUNTY

Was created in 1840 under the name of Anamickee, a mongrel Indian name without special meaning. In 1843 the name was changed to Alpena, a combination derived from the Indian word Penaisee, meaning a bird, and the Arabic prefix Al. The county was organized in 1857. The county seat originally at Fremont was soon changed to Alpena. Acres in county, 370,470. Population in 1860, 291; 1870, 3,011; 1880, 8,789; 1890, 15,581; 1894, 17,717; 1900, 18,254. Votes cast at spring election of 1899, 3,253. Presidential vote in 1900, McKinley 2,283, Bryan 1,435.

ANTRIM COUNTY

Was created in 1840 under the name of Meegisee, an unmeaning mongrel Indian word. In 1843 the name was changed to Antrim, the name of a county in North Ireland where the celebrated curiosity of Giants' Causeway is located. The county was organized in 1863. The last change in the county limits was made by an act of 1881. The county seat, originally located at Elk Rapids, is now at Bellaire. Acres in county, 305,927. Population in 1870, 2,409; 1880, 5,237; 1890, 10,413; 1894, 12,427; 1900, 16,568. Votes cast at spring election of 1899, 2,164. Presidential vote in 1900, McKinley 2,583, Bryan 737.

CALHOUN COUNTY

Was created in 1829 and organized in 1833. It was named after John C. Calhoun, vice president of the United States from 1825 to 1833. The county seat is Marshall. Acres in county, 447,126. Population in 1840, 10,599; 1850, 19,169; 1860, 29,398; 1870,

36,571; 1880, 38,452; 1890, 43,501; 1894, 47,472; 1900, 49,315. Votes cast at spring election of 1899, 9,614. Presidential vote in 1900, McKinley 6,226, Bryan 5,562.

CASS COUNTY

Was created and organized in 1829. It was named after Gov. Lewis Cass, Secretary of War under President Jackson and Secretary of State under President Buchanan. The county seat is Cassopolis. Acres in county, 312,894. Population in 1840, 5,710; 1850, 10,906; 1860, 17,895; 1870, 21,097; 1880, 22,008; 1890, 20,953; 1894, 21,176; 1900, 20,876. Votes cast at spring election of 1899, 5,007. Presidential vote in 1900, McKinley 3,217, Bryan 2,826.

CHARLEVOIX COUNTY

Was created in 1840 under the name of Keshkauko, but in 1843 was changed to Charlevoix. The first name had no particular significance, while Charlevoix was the name of a distinguished Jesuit missionary who visited this region in 1721. The county was organized in 1869, and its present limits date from an act of 1895, and for municipal purposes Beaver island and those adjacent are attached to it. The county seat has been located at the following places in the order named: Charlevoix, East Jordan, Boyne, and again at Charlevoix. Number of acres in county, 265,215. Population in 1870, 1,724; 1880, 5,114; 1890, 9,686; 1894, 11,246; 1900, 13,956. Votes cast at spring election of 1899, 2,316. Presidential vote in 1900, McKinley 2,266, Bryan 779.

COAL.

It is estimated by geologists that one-fifth of the lower peninsula of Michigan is underlaid by coal-bearing deposits. The total area of the coal basin covers nearly 9,000 square miles, running from Jackson county on the south to Roscommon county on the north, and from Huron county on the east to Mecosta county on the west. Not all of this area contains coal in veins profitable for working, but the rich finds in the Saginaw valley are believed to be an index of what will follow. There are now more than 200,000 acres under lease, the yield per acre being estimated at 4,500 tons. On January 1, 1901, there were 31 mines in operation, 13 in Saginaw county, eight in Bay, five in Eaton, two in Shiawassee, one in Huron, and two in Jackson county. They may be seen at Saginaw, St. Charles, Sebewaing and Grand Ledge. It is said that Michigan now produces 60,000 tons of coal per month at an average value of \$1.44 per ton.

See also State Inspector of Coal Mines.

COGNOMENS OF STATE.

The State is favored with five different popular cognomens. It is called the Lake State, because almost surrounded by the Great Lakes, and containing thousands of small lakes. The Peninsular State because so nearly surrounded by the waters of the Great Lakes.

The Wolverine State, after the animal called the wolverine, which once was numerous in this region. There is now not much propriety in this name, which was fastened on the State at an early day. They are now rarely found, but in the fall of 1900 a number were seen in Antrim county. The wolverine is about a foot high, weighs 25 to 30 pounds, and has a stout body two and one-half feet long, with arched back. Its legs are short and thick and its claws strong and sharp. Its foot-prints resemble those of a bear, and the hind feet are about four inches broad. The tail is short and bushy, the head broad and rather pointed, with jaws resembling those of a dog, the eyes and ears small, and the fur generally of a dark brown, with lighter stripes on each side.

The Mitten State, from the general resemblance of the outline of the lower peninsula to a huge mitten, the thumb being defined by the waters of Lake Huron and Saginaw bay. The Summer State is the latest cognomen bestowed upon Michigan. It is one that cannot possibly be as appropriately applied to any other state. No other has or could have so many beautiful resorts wherein to avoid the heat of summer. With great lakes almost surrounding it, with thousands of lakes within it, and with its health-

giving climate and natural scenery, Michigan stands preeminent as the Mecca of the summer tourist.

That portion between Lakes Huron and Michigan is known as the Lower Peninsula, and that lying between Lake Superior and Lakes Huron and Michigan, the Upper Peninsula.

COPPER.

The first discovery of copper was made at the Minnesota mine in 1847. Attention was attracted by the pits of the prehistoric miners. In one of the pits was a mass of native copper weighing six tons. The ancient miners had lifted it upon timbers five feet from the bottom of the pit. The timbers which had been placed beneath had decayed, the earth about the mass holding it in place above the pit's bottom. Growing from the earth which covered the mass was a hemlock tree which showed 395 annual rings of growth. Many stone hammers and a copper chisel were found in the pit. To this mine belongs the distinction of having yielded the largest mass of native copper ever taken from the earth. It was found in 1855 at a depth of about 220 feet, and weighed a trifle over 563 tons, requiring the services of forty men for six months to cut it into pieces small enough to permit of hoisting to surface and transportation to the east. As copper was then worth about 50 cents per pound, the value of this nugget was upwards of \$500,000.

The Calumet and Hecla mine is one of the largest producers in the world and the only one in which copper is found in a pure state. Its equipment is unequaled by any other in the world; its shafts are the deepest—the vertical shaft being 4,900 feet in depth; and its stamp mills on the shore of Torch lake treat somewhere about 2,000,000 tons of rock per year. It has an 8,000 horse-power hoisting engine at the Red Jacket shaft, fed with steam from ten boilers of 1,000 horse-power each. The mine has yielded to the company up to the year 1899, 1,265,426,320 pounds of ingot copper and has paid in dividends to June 28, 1899, the magnificent sum of \$60,850,000.

Michigan's product of refined copper for 1898 was 76,830 tons, being 58 per cent of the world's supply for that year.

BAY COUNTY

Was created and organized in 1857. It is so named because it borders on Saginaw bay. The last change affecting its county limits was made by act of 1883. The county seat is at Bay City, formerly called Lower Saginaw. See also Arenac county. Acres in county, 284,735. Population in 1860, 3,169; 1870, 15,820; 1880, 38,081; 1890, 56,412; 1894, 61,304; 1900, 62,378. Votes cast at spring election of 1899, 9,694. Presidential vote in 1900, McKinley 6,462, Bryan 5,090.

BARRY COUNTY

Was created in 1829 and organized in 1839. It is named after William T. Barry, Postmaster General of the United States from 1829 to 1835. The county seat is Hastings. Acres in county, 353,065. Population in 1840, 1,078; 1850, 5,072; 1860, 14,041; 1870, 22,204; 1880, 25,319; 1890, 23,783; 1894, 23,699; 1900, 22,514. Votes cast at spring election of 1899, 5,488. Presidential vote in 1900, McKinley 3,292, Bryan 2,896.

BERRIEN COUNTY

Was created in 1829 and organized in 1831. It was named after John M. Berrien, Attorney General of the United States from 1820 to 1831. The county seat, formerly at Berrien Springs, is now at St. Joseph. Acres in county, 363,216. Population in 1840, 5,011; 1850, 11,417; 1860, 22,274; 1870, 35,119; 1880, 36,780; 1890, 41,285; 1894, 45,635; 1900, 49,165. Votes cast at spring election of 1899, 9,492. Presidential vote in 1900, McKinley 6,597, Bryan 4,956.

GENESEE COUNTY

Was created in 1835 and organized in 1836. Its present limits date from 1843. It was named after a county of the same name in New York, from which many of its early

settlers came. The county seat is Flint. Acres in county, 411,015. Population in 1840, 4,208; 1850, 12,031; 1860, 22,607; 1870, 33,965; 1880, 39,219; 1890, 39,430; 1894, 40,553; 1900, 41,804. Votes cast at spring election of 1899, 8,047. Presidential vote in 1900, McKinley 6,486, Bryan 3,931.

GLADWIN COUNTY

Was created in 1831 and organized in 1875. It was named after Major Henry Gladwin, commander of Detroit at the time of the Pontiac Conspiracy in 1763. The county seat is Gladwin. Acres in county, 330,018. Population in 1880, 1,127; 1890, 4,208; 1894, 4,900; 1900, 6,564. Votes cast at spring election of 1899, 932. Presidential vote in 1900, McKinley 978, Bryan 299.

GRAND TRAVERSE COUNTY

Was created under the name of Omeena in 1840. The name was changed to Grand Traverse when the county was organized in 1851. It was thus named because those who entered the long Grand Traverse bay had to make a "grand traverse" to get out again. The present boundaries date from 1865. The county seat, originally called Boardman's River, is now called Traverse City. Acres in county, 292,961. Population in 1860, 1,288; 1870, 4,443; 1880, 8,422; 1890, 13,355; 1894, 17,515; 1900, 20,479. Votes cast at spring election of 1899, 3,199. Presidential vote in 1900, McKinley 3,126, Bryan 1,288.

GRATIOT COUNTY

Was created in 1831 and organized in 1855. It was named after Capt. Charles Gratiot, of Gen. Harrison's army of the War of 1812. The county seat is at Ithaca. Acres in county, 364,633. Population in 1860, 4,027; 1870, 11,809; 1880, 21,937; 1890, 28,668; 1894, 28,776; 1900, 29,889. Votes cast at spring election of 1899, 5,704. Presidential vote in 1900, McKinley 4,261, Bryan 3,207.

HILLSDALE COUNTY

Was created in 1829 and organized in 1835. It was so named because of the rolling character of the land, it being "hill" and "dale." The county seat was originally at Jonesville, but is now at Hillsdale. Acres in county, 384,950. Population in 1840, 7,240; 1850, 16,159; 1860, 26,301; 1870, 31,691; 1880, 32,726; 1890, 30,660; 1894, 30,272; 1900, 29,865. Votes cast at spring election of 1899, 6,697. Presidential vote in 1900, McKinley 4,787, Bryan 3,328.

IRON ORE.

Michigan produces more iron ore than any other state. In 1898 the total tonnage was one-third of the total product of the world. The first discovery of iron in Michigan was on the morning of September 19, 1844. The compass-man of a party surveying in town 47 north, range 26 west, Marquette county, noticed great fluctuations of the magnetic needle, and finally found his needle pointing nearly south instead of north and called the attention of the party to the wonderful variation. Mr. Burt, of the party, then requested the men to look about them and they quickly found specimens of iron ore, these being principally near outcrops. This was probably the first discovery of iron ore by white men in Michigan, and was later developed as the Jackson mine.

The five ranges of the Lake Superior iron district, lying to the east, the south and the west of the copper country, are the sources of the largest, richest and purest supply of iron ore in the world.

The growth of the mining of iron ore has practically all been since 1850. Michigan then ranked among the states as the eighteenth in amount of ore produced, but for nearly twenty years she has ranked first.

The largest iron mine in the world is at Ironwood, Gogebic county.

The value of the marketed tonnage of iron ore for 1898 was \$16,835,000, and the total tonnage mined was 7,380,319.

If all the iron ore produced for the year 1898 in the State of Michigan was cast into a steel rail weighing 50 pounds to the foot, that rail would encircle the globe one and one-half times. (See Pig Iron.)

JACKSON COUNTY

Was created in 1829 and organized in 1832. It was named after Andrew Jackson, President of the United States from 1829 to 1837. The county seat is Jackson. Acres in county, 455,886. Population in 1840, 13,130; 1850, 19,433; 1860, 26,664; 1870, 36,042; 1880, 34,342; 1890, 39,273; 1894, 42,056; 1900, 48,222. Votes cast at spring election of 1899, 11,011. Presidential vote in 1900, McKinley 6,329, Bryan 6,211.

KALAMAZOO COUNTY

Was created in 1829 and organized in 1830. The name was derived from a Pottowatamie Indian word meaning "the boiling pot," which described the appearance of the Kalamazoo river at that point in its course. The county seat was at first located at Bronson, but is now at Kalamazoo. Acres in county, 357,869. Population in 1840, 7,380; 1850, 13,179; 1860, 24,663; 1870, 32,063; 1880, 34,342; 1890, 39,273; 1894, 42,056; 1900, 44,310. Votes cast at spring election of 1899, 8,611. Presidential vote in 1900, McKinley 6,007, Bryan 4,708.

KALKASKA COUNTY

Was created in 1840 under the name of Wabassee; the name was changed in 1843. The original name was a coined word without special meaning. Kalkaska was the name of an Indian tribe. The county was organized in 1871 and has had its present limits since 1881. The county seat is Kalkaska. Acres in county, 359,144. Population in 1870, 424; 1880, 2,937; 1890, 5,160; 1894, 5,640; 1900, 7,133. Votes cast at spring election of 1899, 1,061. Presidential vote in 1900, McKinley 1,312, Bryan 360.

KENT COUNTY

Was created in 1831 and organized in 1836. Its present limits were defined in 1840. It was named after James Kent, the celebrated jurist of New York. The county seat is Grand Rapids. Acres in county, 545,408. Population in 1840, 2,587; 1850, 12,017; 1860, 30,743; 1870, 50,410; 1880, 73,252; 1890, 109,922; 1894, 121,938; 1900, 129,714. Votes cast at spring election of 1899, 21,115. Presidential vote in 1900, McKinley 17,891, Bryan 13,794.

LAKE COUNTY

Was created under the name of Aisheum in 1840, and name changed to Lake in 1843. The original name was a manufactured Indian word without meaning. The name Lake is certainly appropriate for a county in a state almost surrounded by lakes. The county was organized in 1871. The county seat, at first located at Chase, is now at Baldwin. Acres in county, 365,387. Population in 1880, 3,233; 1890, 6,505; 1894, 5,897; 1900, 4,957. Votes cast at spring election of 1899, 1,054. Presidential vote in 1900, McKinley 840, Bryan 350.

LAPEER COUNTY

Was created in 1822 and organized in 1835. Its present limits were defined in 1855. "La" being the French for "the," Governor Cass, who named this county, perhaps meant to indicate that it was the Peer, i. e., the equal of any of the existing counties. It was claimed that he named it after a French officer named Lapere, who is said to have aided the colonists during the Revolution. The county seat is Lapeer. Acres in county, 424,030. Population in 1840, 4,265; 1850, 7,026; 1860, 14,875; 1870, 21,345; 1880, 30,138; 1890, 29,213; 1894, 28,879; 1900, 27,641. Votes cast at spring election of 1899, 5,232. Presidential vote in 1900, McKinley 3,709; Bryan 2,217.

LEELANAU COUNTY

Was created in 1840 and organized in 1863. The name was derived from the Indian word, Leel-in-au, meaning "Delight of Life." For municipal purposes, Fox and Manitou islands are attached to this county. The county seat was at first located at Northport, but is now at Leland. Acres in county, 219,288. Population in 1860, 2,445; 1870, 4,577; 1880, 6,253; 1890, 7,944; 1894, 9,395; 1900, 10,556. Votes cast at spring election of 1899, 1,600. Presidential vote in 1900, McKinley 1,484, Bryan 637.

LIVINGSTON COUNTY

Was created in 1833 and organized in 1836. It was named after Edward Livingston, Secretary of State of the United States from 1831 to 1833. The county seat is Howell. Acres in county, 370,845. Population in 1840, 7,430; 1850, 13,475; 1860, 16,629; 1870, 19,417; 1880, 22,251; 1890, 20,858; 1894, 20,437; 1900, 19,664. Votes cast at spring election of 1899, 5,313. Presidential vote in 1900, McKinley 2,858, Bryan 2,730.

SAGINAW COUNTY

Was created in 1822 and organized in 1835. The present limits were defined in 1881. The name was derived from the Indian word Sac-e-nong, meaning Sactown, or the town of the Sac or Sauk Indians who inhabited this region. The county seat is Saginaw. Acres in county, 519,861. Population in 1840, 892; 1850, 2,609; 1860, 12,758; 1870, 39,079; 1880, 59,095; 1890, 82,273; 1894, 81,847. Votes cast at spring election of 1899, 13,104. Presidential vote in 1896, McKinley 8,361, Bryan 8,792.

SANILAC COUNTY

Was created in 1822 and organized in 1850. It was named by Governor Cass, after a Wyandot Indian warrior. The county seat, originally at Lexington, was moved to Sandusky, the name of which place has since been changed to Sanilac Center. Acres in county, 616,035. Population in 1850, 2,322; 1860, 7,623; 1870, 14,565; 1880, 26,341; 1890, 32,589; 1894, 33,945. Votes cast at spring election of 1899, 5,024. Presidential vote in 1896, McKinley 3,634, Bryan 3,156.

SHIAWASSEE COUNTY

Was created in 1822 and organized in 1837. Its name was derived from an Indian word meaning "straight running," referring to the course of the Shiawassee river between Owosso and St. Charles. The county seat was originally at Byron, but is now at Corunna. Acres in county, 343,964. Population in 1840, 2,103; 1850, 5,233; 1860, 12,888; 1870, 20,864; 1880, 27,059; 1890, 30,952; 1894, 32,854; 1900, 33,866. Votes cast at spring election of 1899, 7,143. Presidential vote in 1900, McKinley 5,051, Bryan 3,443.

MASON COUNTY

Was created under the name of Notipekago in 1840. The name was changed to Mason in 1843. The original name was a supposed Indian word, but had no particular significance. The county was called Mason after Stevens T. Mason, the last territorial and the first State governor. The county was organized in 1855. The county seat was originally at Lincoln, then at Au Sable, and is now at Ludington. Acres in county, 315,526. Population in 1850, 93; 1860, 831; 1870, 3,294; 1880, 10,063; 1890, 16,385; 1894, 18,422; 1900, 18,885. Votes cast at spring election of 1899, 2,879. Presidential vote in 1900, McKinley 2,186, Bryan 1,252.

MECOSTA COUNTY

Was created in 1840 and organized in 1859. Its present limits were defined in 1857. The name is believed to have been derived from Irish sources, as were those of several

other counties, which were created about the same time. It has also been suggested that Mecosta was the name of an Indian chief. The county seat was originally at Leonard, but is now at Big Rapids. Acres in county, 361,876. Population in 1860, 1,017; 1870, 5,778; 1880, 13,973; 1890, 19,697; 1894, 20,729; 1900, 20,693. Votes cast at spring election of 1897, 3,317. Presidential vote in 1900, McKinley 2,804, Bryan 1,376.

MENOMINEE COUNTY

Was created as the county of Bleeker in 1861. Its name was changed and the county organized in 1863. Its present limits were defined in 1891. It was named after the Menominee tribe of Indians. The county seat is Menominee. Acres in county, 666,706. Population in 1870, 1,894; 1880, 11,988; 1890, 33,639; 1894, 23,740; 1900, 27,046. Votes cast at spring election of 1899, 2,776. Presidential vote in 1900, McKinley 3,122, Bryan 1,543.

MIDLAND COUNTY

Was created in 1831 and organized in 1855. It was so named because a large part of it lies between the forks of the Chippewa and Tittibawassee rivers. It is also near the center of the lower peninsula. The county seat is Midland. Acres in county, 335,867. Population in 1850, 65; 1860, 782; 1870, 3,517; 1880, 6,894; 1890, 10,657; 1894, 13,218; 1900, 14,439. Votes cast at spring election of 1899, 2,544. Presidential vote in 1900, McKinley 1,783, Bryan 1,224.

MISSAUKEE COUNTY

Was created in 1840 and organized in 1871. It is believed to have been named from a Chippewa Indian chief. The word is a corruption of Missisaging, meaning "at the mouth of a large river." The county seat was originally at Falmouth, but is now at Lake City. Acres in county, 362,798. Population in 1880, 1,553; 1890, 5,048; 1894, 6,955; 1900, 9,308. Votes cast at spring election of 1899, 1,307. Presidential vote in 1900, McKinley 1,420, Bryan 617.

MONROE COUNTY

Was created and organized in 1817. Its present limits were defined in 1822. It was named after James Monroe, President of the United States, who visited the territory the year this county was organized. The county seat is Monroe. Acres in county, 354,528. Population in 1840, 9,922; 1850, 14,695; 1860, 21,648; 1870, 27,534; 1880, 33,623; 1890, 32,337; 1894, 33,181; 1900, 32,754. Votes cast at spring election of 1899, 6,491. Presidential vote in 1900, McKinley 3,874, Bryan 3,859.

MONTCALM COUNTY

Was created in 1831 and organized in 1850. Its present limits were defined in 1857. It was named after the French general, Marquis de Montcalm, killed at the taking of Quebec in 1759. The county seat was originally at Greenville, but is now at Stanton. Acres in county, 454,281. Population in 1850, 891; 1860, 3,984; 1870, 13,642; 1880, 33,148; 1890, 32,637; 1894, 34,158; 1900, 32,754. Votes cast at spring election of 1899, 5,206. Presidential vote in 1900, McKinley 4,826, Bryan 2,638.

MONTMORENCY COUNTY

Was created under the name of Cheonoquet in 1840, but was changed to Montmorency in 1843. The original name was not really an Indian word and was without meaning. The present name is derived from Matthew Jean Feliete Montmorency, a French statesman who served in the American Revolution. The county was organized in 1881. The county seat was at first at Hillman, but is now at Atlanta. Acres in county, 355,540. Population in 1890, 1,487; 1894, 2,438; 1900, 3,234. Votes cast at spring election of 1899, 652. Presidential vote in 1900, McKinley 542, Bryan 233.

MOUNTAINS IN MICHIGAN.

The Porcupine Mountains in Ontonagon county are about 1,400 feet high. There is also a range known as the Huron Mountains, in the northwestern corner of Marquette county.

MUSKEGON COUNTY

Was created and organized in 1859. The name was derived from the Pottowatamie Indian word, Muskeeginac or Muskego, meaning "cranberry marsh" or marshy place, cranberries and marsh being usually associated together. The county seat is at Muskegon. Acres in county, 321,492. Population in 1860, 3,893; 1870, 14,896; 1880, 26,586; 1890, 40,013; 1894, 37,324; 1900, 37,036. Votes cast at spring election of 1899, 6,248. Presidential vote in 1900, McKinley 5,247, Bryan 2,801.

NEWAYGO COUNTY

Was created in 1840 and organized in 1851. It was named from Ne-Gwa-Gon, a Chipewewa Indian chief, the literal meaning of which is "much water." It is also claimed that the word Newaygo means "Here we rest." The county seat is Newaygo. Acres in county, 542,222. Population in 1850, 510; 1860, 2,767; 1870, 7,292; 1880, 14,688; 1890, 20,476; 1894, 19,125; 1900, 17,673. Votes cast at spring election of 1899, 3,153. Presidential vote in 1900, McKinley 2,612, Bryan 1,423.

OAKLAND COUNTY

Was created and organized in 1820. Its present limits were defined in 1822. It was named from the abundance of its oaks. The county seat is Pontiac. Acres in county, 575,400. Population in 1840, 23,646; 1850, 31,267; 1860, 38,020; 1870, 40,906; 1880, 41,537; 1890, 41,245; 1894, 42,676; 1900, 44,792. Votes cast at spring election of 1899, 9,565. Presidential vote in 1900, McKinley 6,174, Bryan 4,968.

OSCODA COUNTY

Was created in 1840 and organized in 1881. Its name is the Indian word, Oscoda, meaning "pebbly prairie." The county seat is Mio. Acres in county, 365,127. Population in 1880, 467; 1890, 1,904; 1894, 1,806; 1900, 1,468. Votes cast at spring election of 1899, 180. Presidential vote in 1900, McKinley 245, Bryan 60.

ST. CLAIR COUNTY

Was created in 1820 and organized in 1821. Its present limits were defined in 1849. It was named either after Gov. Arthur St. Clair, the first governor of the Northwest territory, or after Maj. Patrick Sinclair, a British officer and a large landholder on the river as early as 1765. The county seat was originally at Palmer, since changed to St. Clair, but now is at Port Huron. Acres in county, 428,697. Population in 1840, 4,606; 1850, 10,411; 1860, 26,814; 1870, 36,687; 1880, 46,197; 1890, 52,105; 1894, 54,321. Votes cast at spring election of 1899, 8,471. Presidential vote in 1896, McKinley 7,160, Bryan 5,130.

ST. CLAIR TUNNEL.

This tunnel, passing under the St. Clair river, is the longest sub-marine tunnel in the world.

The length of the tunnel proper is 6,025 feet, and of the open portals or approaches 5,603 feet additional, or more than two miles in all. It is a continuous iron tube, 19 feet 10 inches in diameter, put together in sections as the work of boring proceeded, and firmly bolted together, the total weight of the iron aggregating 56,000,000 pounds.

The work was commenced in September, 1888, and it was opened for freight traffic in October, 1891, a little more than three years being required for its completion. Passenger trains began running through it December 7, 1891. The work was begun on

both sides and carried on until the two sections met in mid-river, and with such accuracy that they were perfectly in line as they came together.

The engines used for pulling the trains through the tunnel and up the steep grade after emerging, are the largest in the world, having ten drive wheels, and weighing nearly 200,000 pounds. The boilers are 74 inches in diameter, the fire-boxes 132½ inches long, and 42½ inches wide, and the cylinders are 22 inches in diameter, with 28 inches stroke.

The cost of the great tunnel was \$2,700,000 and 4,000 cars can be moved through it daily.

ST. JOSEPH COUNTY

Was created and organized in 1829. It was named from the St. Joseph river, which runs through the county. The river was named St. Joseph by the earliest French Catholic explorers after Saint Joseph, the husband of the Virgin Mary. The county seat is at Centreville. Acres in county, 321,450. Population in 1840, 7,068; 1850, 12,717; 1860, 21,111; 1870, 26,274; 1880, 26,626; 1890, 25,356; 1894, 25,087. Votes cast at spring election of 1899, 5,895. Presidential vote in 1896, McKinley 3,184, Bryan 3,968.

SALT AND SODA ASH

Michigan easily stands first among all the states in the production of salt. Practically almost all of the lower peninsula covers a bed of rock salt. The salt is found at varying depths of from 800 to 2,200 feet, and in Wayne county the deposit reaches the amazing thickness of 600 feet.

* Near Detroit these brine deposits have reached their greatest development in the production of soda ash and other by-products. This locality is evidently destined to be the greatest center in the world for these articles.

The total number of barrels of salt produced in the State in 1900 was 4,820,865.

If all these barrels of salt were set upon end, one barrel touching another, it would make an unbroken line of over 1,500 miles in length.

Since 1860 the State has produced 91,413,483 barrels of salt.

VAN BUREN COUNTY

Was created in 1829 and organized in 1837. It was named after Martin Van Buren, President of the United States. The county seat is at Paw Paw. Acres in county, 391,289. Population in 1840, 1,910; 1850, 5,804; 1860, 15,230; 1870, 28,735; 1880, 30,807; 1890, 30,761; 1894, 31,059; 1900, 33,274. Votes cast at spring election of 1899, 6,801. Presidential vote in 1900, McKinley 4,890, Bryan 3,235.

WASHTENAW COUNTY

Was created in 1822 and organized in 1826. The name was derived from the Indian word Washten-ong, their name for the Grand river, which has its rise in the southern part of the county. The county seat is at Ann Arbor. Acres in county, 455,138. Population in 1840, 23,571; 1850, 28,569; 1860, 35,747; 1870, 41,442; 1880, 41,848; 1890, 42,210; 1894, 43,509; 1900, 47,761. Votes cast at spring election of 1899, 9,249. Presidential vote in 1900, McKinley 5,378, Bryan 5,072.

WATER.

Michigan can more properly than any other be called the "Water State." It is almost surrounded by great bodies of fresh water; its interior is watered by tens of thousands of large rivers and beautiful streams, and other thousands of sparkling lakes. All of these waters are surpassingly clear and the region is absolutely unrivalled in the abundance and purity of its water supply. There are living springs in almost every county. One at Northville, Wayne county, discharges 375 gallons per minute. Artesian wells from 100 to 400 feet deep are numerous and afford a plentiful supply of water. In some instances the water rises to a height of 50 feet.

Mineral wells are found in many parts of the lower peninsula, those at Alma, Bay Port, St. Clair, Spring Lake, Midland, Mt. Clemens, Hudson, and Ypsilanti being especially noted. (See Health Resorts.)

A State law provides for the free analysis at the State University of the water supplied in any locality.

WAYNE COUNTY

Was created and organized in 1796. Its present limits were defined in 1826. It was named after Gen. Anthony Wayne, of the United States army, to whom this region was yielded by the English. The county seat is Detroit. Acres in county, 381,005. Population in 1840, 24,173; 1850, 42,765; 1860, 75,284; 1870, 119,054; 1880, 166,426; 1890, 257,114; 1894, 292,461; 1900, 348,793. Votes cast at spring election of 1899, 40,908. Presidential vote in 1900, McKinley 36,745, Bryan 28,416.

WEIGHT PER BUSHEL OF DIFFERENT PRODUCTS.

The weight per bushel of certain products as prescribed by State law is as follows:

Wheat, beans, cloverseed, potatoes, peas.....	60 lbs.
Rye, shelled corn, flaxseed, sweet potatoes, Michigan salt.....	56 lbs.
Corn on cob, stone lime.....	70 lbs.
Cornmeal, millet or Hungarian grass seed.....	50 lbs.
Oats	32 lbs.
Buckwheat, barley, apples.....	48 lbs.
Timothy seed	45 lbs.
Hemp seed	44 lbs.
Blue grass seed, red top seed, orchard grass seed.....	14 lbs.
Dried apples	22 lbs.
Dried peaches, dried plums.....	28 lbs.
Onions	54 lbs.
Turnips	58 lbs.
Cranberries	40 lbs.
Castor beans	46 lbs.
Mineral coal	80 lbs.
Osage orange seed.....	33 lbs.

WEXFORD COUNTY

Was created under the name of Kautawaubet in 1840, but the name was changed to Wexford in 1843. The original name was a pretended Indian word, and without meaning. The name Wexford is from a county in Ireland, the emigration from that country in 1843 being very large. The county was organized in 1869, with county seat at Sherman, but it is now at Cadillac. Acres in county, 366,058. Population in 1870, 780; 1880, 6,815; 1890, 11,278; 1894, 14,047; 1900, 16,845. Votes cast at spring election of 1899, 2,273. Presidential vote in 1900, McKinley 2,520, Bryan 1,019.

BUSY WORK.

All busy work should be correlated with daily lessons of pupil. Give such exercises as call for form, counting, selection of colors, and accurate statement. Do not, however, expect pupils to do nothing but busy work. Make it the spice and not the steady diet. Children demand variety, and the teacher should study up new phases of work and thus save pupils from *ennui*.

Suggestions:—

1. *Material*.—Toothpicks. *Use*.—Draw figures of squares, triangles, oblongs, houses, boxes, etc., and have the pupils form the same with toothpicks.
2. *Material*.—Colored shoe pegs, colored corn, split peas. *Use*.—Much the same as the toothpicks. Teach also colors. Make the new word of reading lesson in large script, and let pupils form the word by laying the split peas or corn upon the lines.
3. *Material*.—Tissue paper of different colors cut into squares, triangles, circles, etc. *Use*.—Pupils form designs by pasting these together.
4. *Material*.—Tissue paper, ordinary writing paper or cardboard. *Use*.—Fold and cut designs, or make into boxes, tents, houses, etc.
5. *Material*.—Tissue paper. *Use*.—Cut into inch strips about four inches long and paste into links for chain-making.
6. *Material*.—Weaving-mats, weaving-needle, and zephyr. *Use*.—Pupils make designs placed upon the board by teacher.
7. *Material*.—Stiff paper and coarse needles stuck into small corks. *Use*.—Pupils "prick" new words, following lines made upon the paper by teacher; also leaves and geometric forms.

MORALS AND MANNERS.

The *Golden Rule* is the basis of all good manners.

"Manners are something with every one and everything with some."

Since an educated rascal is a much worse enemy to society than an ignorant one, education without morality is a curse. All teaching should therefore possess the vital elements of morality; not that every lesson or day's work should have a moral tacked upon it, but back of the teacher's every look, word, and act there should be purity and honesty. Character in the teacher will develop character in the pupil.

Closely allied to good morals is good manners. Indeed, good manners should be the outgrowth of good-will, and no person truly possesses them whose acts do not spring from a kindly heart. Conversely, good manners properly taught the child, react upon his heart and produce a genuine desire to give others no discomfort.

SUGGESTIVE OUTLINES.

At School:—

Entering and leaving room.
 Talking about oneself.
 Laughter at others.
 Treatment of strangers.
 Treatment of other's property.
 Use of school property.

At Home:—

Treatment of parents.
Treatment of brothers and sisters.
Treatment of servants.
Treatment of company.

At the Table:—

Promptness when meals are announced.
Waiting one's turn.
When to begin to eat.
How to eat.
Use of napkin, knife, fork, and spoon.
How to ask for food.
Criticism of food.
Conversation—unpleasant subjects.
Leaving table.
Use of toothpick.
Observing well-bred people.

At Another's Home:—

How to enter; how to leave.
Removal of wraps.
Introductions—distinct enunciation of names.
Staring, whispering, laughing, etc.
Sitting still.
Attention—in conversation, to reading, to music.
Contradicting.
Making oneself agreeable.

At Church:—

Punctuality.
Entering.
Courtesy—to ladies, to strangers.
Whispering, laughing, etc.
Attention to the service.
Notice of those coming in.
Joining in the general forms of worship.

At Entertainments:—

Punctuality.
Taking seats.
Gazing about.
Talking.
Interfering with others.
Leaving.

At the Store:—

Inquiry for articles.
Finding fault with articles and handling of goods.
Courtesy to clerks.

On the Street:—

Noisy and boisterous conduct.
Accosting people across the street.
Obstructing the sidewalk.
Meeting people—turn to right.
Passing people—turn to left.
Eating on the street.
Throwing things upon the sidewalk.
Looking into windows of houses.
Gentleman walking with lady—upon her left.
Salutations.

Traveling:—

Buying ticket—take turn.
 Occupying seats in cars.
 Leaving seats temporarily.
 Taking seat with another.
 Courtesy towards officials and passengers.
 Courtesy to ladies.

The above outlines are suggested by "Lessons on Manners," published by Lee & Shepard, Boston—price, 35 cents, postpaid. These outlines may be supplemented by others as occasion seems to demand; but when an attempt is made to teach this subject, let it be systematically done and not simply to fill some idle moments. Furthermore, strive to have courteous acts spring from the desire to be kind rather than for the sake of appearance.

CALISTHENICS.

Believing that every teacher should have a systematic variety of physical exercises, a few suggestive ones are here given to which the ingenious teacher can readily add others. These are not to be used *once or twice*, but each division, in connection with some other school exercise, should be used for one or two weeks. Insist upon instant obedience to every command and accuracy in every movement. This is imperative if the exercises are a success. As a rule the teacher, but not the pupil, should count for these exercises.

Teach the following: How to sit, how to rise, how to stand, how to walk, how to breathe.

Breathing Exercises:—

Body erect—inhale through the nose, exhale through the mouth.
 Exhale with a sigh.
 Exhale forcibly.
 Inhale during eight counts, exhale during twelve.
 Inhale a full breath and count in a whisper, first twenty, then thirty, increasing the count daily until pupils readily count fifty. These should be practiced daily.

Development Exercises:—

Head—(a) Bend to right, (b) to left, (c) to front, (d) backward, (e) rotate.
Fingers—Stretch fingers with arms (a) at side, (b) horizontal side, (c) above head, (d) front parallel, fingers wide apart. (Teacher count 1, 2, 3, 4.)
Arms—Stretch arms in the same positions as above, first singly, then both together.
Shoulders—(a) Forward, (b) backward, (c) up, (d) down.
Feet—Hands on hips; (a) raise heels eight times, (b) raise toes eight times, (c) heels and toes alternately, (d) advance foot slightly and raise heels eight times.

Relaxing Exercises:—

Hands—With every muscle relaxed, shake up and down, (a) right hand, (b) left hand, (c) both hands, (d) circle hands outward from wrist (first right, then left, then both hands), (e) circle hands inward from the wrist (first right, etc.).

Foot Exercise:—

Hands on hips; (a) swing right foot forward, touching floor lightly with toes, knee straight, (b) swing backward, touching toes only, (c) forward and backward.
Listening—With right foot slightly advanced, knee bent, right hand to ear, head bent slightly to left, count 1, 2, 3, 4.
Looking—Same foot-position as in above, eyes shaded with right hand, look intently, count 1, 2, 3, 4.

Swinging Exercises:—*Arm (right, left, alternate, both):—*

1. Sideways to shoulder level.
2. Front to shoulder level.
3. Back to nearly shoulder level.
4. Pendulum, back and forth from shoulder.
5. To front, shoulder level, back horizontally.
6. Out at side, vertically overhead, elbow rigid.
7. To front, vertical position overhead, elbow rigid.
8. From shoulder, elbow rigid, describing circle; 1, front; 2, rear; 3, alternate.

Leg (right, left, alternate):—

1. Forward, knee rigid, not quite 45°.
2. Backward, knee rigid, not quite 45°.
3. Out at side, same.
4. Pendulum, first and second positions.
5. Foot across to opposite side, toes touching floor in front of opposite foot.
6. Same movement backward.

These exercises give the shoulder and hip flexibility.

Bending Exercise:—*Trunk (head on level with body, knees rigid):—*

1. Forward.
2. Back.
3. Right.
4. Left.
5. Diagonal.
6. Rotation.

Movement Exercises:—*Elbow (right, left, alternate, both):—*

1. Finger tips on shoulders, elbows at sides, shoulders level—straighten arm sideways.
2. Same position—straighten arm upward.
3. Elbow high, fist near armpit—thrust downward.
4. Arm at side—raise forearm till finger tip touches shoulder. Position.
5. Elbow raised sideways, shoulder level, finger tips touch in front of chest—straighten elbow.
6. Same position—raise elbows.

Knee (right, left, alternate):—

1. Raise foot backward till leg below knee is parallel with floor, keeping knees together.
2. Raise knee till foot is level with opposite knee.
3. Touch floor with finger tips, knees rigid.
4. Knee rigid, four positions, pendulum.

Ankle (up, down, left, right, alternate, half rotation):—

1. Raise foot from floor, bend ankle.
2. Hop on ball of foot, strain on ankle (right, left).
3. Stationary, cross-footed hop.

Strength:—

All exercises tend in this direction, as good health means strength.

1. Four positions of arm—imaginary rope pulling.
2. (a) Arms to front, shoulder level, hands apart width of shoulders, palms back, push back horizontally in imaginary swimming movement.
- (b) Same position, palms forward, as if gathering into the arms and crushing air out of an imaginary large rubber ball.

A FEW INTERESTING FACTS.

Oberlin College, Ohio, was the first college in the United States to admit women. The largest park in the United States is Fairmount at Philadelphia, containing 2,740 acres.

July 4, 1776, was on Thursday.

Postage stamps are counted eleven times during the process of manufacture.

It would take 9,512 years to count a trillion.

It costs \$4,750 to fire one of Krupp's 130-ton steel guns. Cost of gun, \$95,000; range, 15 miles; weight of projectile, 2,600 lbs. They cannot be fired more than sixty times.

The total number of deaths in Andersonville prison was 12,462, about one-third of which took place in the stockade and two-thirds in the hospital. The greatest number imprisoned at any one time was 33,006. Number of escapes, 328.

Mackinac Island Reservation has been given to our State by Congress for a State military site.

The most powerful light in the world is located on Fire Island, near New York city. It throws light 100 miles.

DATES OF FIRST OCCURRENCES.

The first watches were made at Nuremberg in 1477.

Telescopes were invented in 1590.

The first printing press in the United States was introduced in 1629.

The first society for the promotion of Christian knowledge was organized in 1698.

The first balloon ascent was made in 1783.

The first steamboat plied the Hudson in 1807.

The first temperance society in this country was organized in Saratoga county, N. Y., in March, 1808.

The first use of a locomotive in this country was in 1820.

Kerosene was first used for lighting purposes in 1826.

The first lucifer match was made in 1829.

The first iron steamship was built in 1830.

The first steel pen was made in 1830.

Omnibuses were introduced in New York in 1830.

The first telegraphic instrument was successfully operated by S. F. B. Morse, the inventor, in 1835, though its utility was not demonstrated to the world until 1842.

Ships were first "copper-bottomed" in 1837.

Envelopes were first used in 1839.

Anæsthetics were first used in 1844.

The first complete sewing-machine was patented by Elias Howe, Jr., in 1846.

Gold was first discovered in California in 1848.

OPENING EXERCISES.

These should be brief, pleasing, and have the elements of moral training; but a teacher should refrain from preaching morals. Variety here, as elsewhere, is "spice." We suggest the following:

1. Roll-call by number, each pupil responding one morning each week with some memory gem or important event.
2. Singing. (If teacher cannot sing, let some pupil lead.)
3. Recitation or reading by some pupil.

Or the following may succeed roll-call:

Monday: Music—Bible readings. (If there is objection, do not attempt to force the matter.)

Tuesday: Memory gems.

Wednesday: Music—recitations or Bible readings.

Thursday: Music—current events.

Friday: Music—(a) most interesting things learned during week; (b) things not understood. Let pupils discuss these freely, teacher making notes for further review of things least understood.

MEMORY GEMS.

BOOKS.

1. Laws die, books never.—*Lytton*.
2. Books are embalmed minds.—*Bovee*.
3. Books—Lighthouses built on the sea of time.—*Whipple*.
4. There is no past so long as books live.—*Lytton*.
5. Hark, the world so loud and they, the movers of the world, so still.—*Lytton*.
6. A taste for books is the pleasure and glory of my life. I would not exchange it for the glory of the Indies.—*Gibbon*.
7. Yes, there is a choice in books as in friends; and the mind sinks or rises to the level of its habitual society—for they, too, insensibly give away their own nature to the mind that converses with them.—*Holmes*.
8. No book can be so good as to be profitable when negligently read.—*Seneca*.
9. Books should to one of these four ends conduce,
For wisdom, piety, delight, or use.
—*Denham*.
10. That is a good book that is opened with expectation and closed with profit.
—*Alcott*.
11. Books are the best things, well used; abused, among the worst.—*Emerson*.
12. If time is precious, no book that will not improve by repeated readings deserves to be read at all.—*Carlyle*.
13. Some books are to be tasted, others to be swallowed, and some few to be chewed and digested.—*Bacon*.
14. God be thanked for books. They are the voices of the distant and the dead and make us heirs of the spiritual life of past ages.—*Channing*.

EDUCATION.

1. Ignorance never settles questions.—*Disraeli*.
2. A learned man is a tank; a wise man is a spring.—*W. R. Alger*.
3. Education makes one an articulate member of the higher whole.—*Dr. Wm. T. Harris*.
4. I have a firm belief that the rock of our safety as a nation lies in the proper education of our population.—*Benjamin Harrison*.
5. Every man must educate himself. His books and teacher are but helps; the work is his.—*Webster*.
6. If a man empties his purse into his head, no man can take it away from him.—*Franklin*.
7. Education is the only interest worthy the deep controlling anxiety of the thoughtful man.—*Wendell Phillips*.
8. Those who think must govern those who toil.—*Goldsmith*.
9. Learning by study must be won,
’Twas ne’er entailed from sire to son.
—*Gay*.
10. Education commences at the mother’s knee, and every word spoken within the hearing of little children tends toward the formation of character.—*Ballou*.
11. Education is to know for the sake of living, not to live for the sake of knowing.
—*Kate Douglass Wiggin*.
12. Education begins the gentleman, but reading, good company, and reflection must finish him.—*Locke*.
13. Right education is such a preparation of the individual in physical, intellectual, and moral capacities, as will enable him to secure the highest enjoyment from their use, here and hereafter.—*Roark*.

KINDNESS.

1. Kindness has resistless charms.—*Rochester.*
2. With malice toward none, with charity for all.—*Lincoln.*
3. It is true that he who does nothing for others, does nothing for himself.
4. Kind hearts are more than coronets, and simple faith than Norman blood.
—*Tennyson.*
5. How far that little candle throws its beams,—
 So shines a good deed in a naughty world.
—*Shakespeare.*
6. Kindness—a language which the dumb can speak and the deaf can understand.
—*Bovee.*
7. That best portion of a good man's life,
 His little nameless, unremembered acts of kindness and of love.
—*Wordsworth.*
8. Count that day lost whose low descending sun,
 Views from thy hand no worthy action done.
—*Anon.*
9. There's nothing so kingly as kindness,
 And nothing so royal as truth.
—*Anon.*
10. Be good, my child, and let who will be clever;
 Do noble deeds, not dream them, all day long;
 And so make life, death, and that vast forever,
 One grand, sweet song.
—*Kingsley.*
11. In simple manners all the secret lies,
 Be kind and virtuous, you'll be blest and wise.
—*Young.*
12. Life is not so short but that there's always time enough for courtesies.—*Emerson.*
13. Oh, there are looks and tones that dart
 An instant sunshine through the heart;
 As if the soul that minute caught
 Some treasure it through life had sought.
—*Moore.*

HONESTY.

1. Boys, keep your record clean.—*John B. Gough.*
2. An honest man's the noblest work of God.—*Pope.*
3. Dare to be true; nothing can need a lie.—*Herbert.*
4. Falsehood is cowardice; truth is courage.—*Ballou.*
5. Truth is truth whether the individual man believes it or not.—*Moody.*
6. The first and worst of all frauds is to cheat oneself.—*Bailey.*
7. Nothing is at last sacred but the integrity of our own minds.—*Emerson.*
8. You measure every man's honesty by your own.—*Anon.*
9. The honest man, though e'er sae poor,
 Is king of men for a' that.
—*Burns.*
10. There is only one failure in life possible, and that is not to be true to the best
one knows.—*Farrar.*
11. Oh, what a tangled web we weave when first we practice to deceive!—*Scott.*
12. This above all,—to thine own self be true;
 And it shall follow as the night the day,
 Thou canst not then be false to any man.
—*Shakespeare.*
13. Truth crushed to earth shall rise again;
 Th' eternal years of God are hers;
 But error, wounded, writhes in pain
 And dies among his worshipers.
—*Bryant.*

BRAVERY.

1. 'Tis more brave to live than to die.—*Meredith*.
2. None but the brave deserve the fair.—*Dryden*.
3. A brave soul is a thing which all things serve.—*Alex. Smith*.
4. A man of courage is also full of faith.—*Cicero*.
5. There is one thing of which I am afraid, and that is fear.—*Montaigne*.
6. Cowards die many times before their death;
The valiant never taste of death but once.
—*Shakespeare*.
7. Fear makes men look aside and so their footing miss.—*Dryden*.
8. The brave man seeks not popular applause.—*Dryden*.
9. He is not worthy of the honeycomb that shuns the hive because the bees have stings.—*Shakespeare*.
10. True bravery is shown by performing without witness what one might be capable of doing before all the world.—*La Rochefoucauld*.
11. Courage—an independent spark from Heaven's bright throne,
By which the soul stands raised triumphant, high, alone.
—*Farquhar*.
12. The brave man is not he who feels no fear,
For that were stupid and irrational;
But he whose noble soul its fear subdues,
And bravely dares the danger nature shrinks from.
—*Joanna Baillie*.

FRIENDSHIP.

1. A true friend is forever a friend.—*Geo. MacDonald*.
2. A generous friendship no cold medium knows.—*Homer*.
3. Love all, trust few, do wrong to none.—*Shakespeare*.
4. A friend is a person with whom I may be sincere.—*Emerson*.
5. To God, thy country, and thy friend be true.—*Vaughan*.
6. To suspect a friend is worse than to be deceived by him.—*La Rochefoucauld*.
7. A true test of friendship—to sit or walk with a friend for an hour in perfect silence without wearying of one another's company.—*Mrs. Mulock-Craik*.
8. Well-chosen friendship, the most noble
Of virtues, all our joys makes double,
And into halves divides our troubles.
—*Sir J. Denham*.
9. Friendship above all ties does bind the heart,
And faith in friendship is the noblest part.
—*Shakespeare*.
10. We can never replace a friend. When a man is fortunate enough to have several, he finds they are all different. No one has a double in friendship.—*Schiller*.
11. The friends thou hast and their adoption tried,—
Grapple them to thy side with hooks of steel.
—*Shakespeare*.
12. A friend is gold; if true he'll never leave thee;
Yet both, without a touchstone, may deceive thee.
—*Thos. Randolph*.
13. Friendship has a power
To soothe affliction in her darkest hour.
—*Henry Kirke White*.

PATRIOTISM.

1. America means opportunity.—*Emerson.*
2. Liberty and Union, now and forever, one and inseparable.—*Webster.*
3. Millions for defense, but not one cent for tribute!—*Pinckney.*
4. The patriot's boast,—where'er we roam,
 His first, best country ever is at home.
 —*Goldsmith.*
5. Patriotism is not only a legitimate sentiment, but a duty.—*King.*
6. We join ourselves to no party that does not carry the flag and keep step to the music of the Union.—*Choate.*

(Concord.)

7. By the rude bridge that arched the flood,
Their flag to April's breeze unfurled,
Here once the embattled farmers stood
And fired the shot heard round the world.
—Emerson.
8. Up with our banner bright,
Sprinkled with starry light,
Spread its fair emblems from mountain to shore,
While through the sounding sky
Loud rings the nation's cry,—
Union and Liberty! One evermore!
—Holmes.
9. Breathes there a man with soul so dead
Who never to himself hath said
"This is my own, my native land?"
—Scott.
10. The stability of this government and the unity of this nation, depend solely on
the cordial support and the earnest loyalty of the people.—*U. S. Grant.*
11. I was born an American, I live an American, I shall die an American; and I
intend to perform the duties incumbent upon me in that character to the
end of my career.—*Webster.*
12. This nation under God shall have a new birth of freedom; and that government of
the people, by the people, for the people, shall not perish from the earth.
—Lincoln.
13. We cannot honor our country with too deep a reverence; we cannot love her with
an affection too pure and fervent; we cannot serve her with an energy of pur-
pose or a faithfulness of zeal too steadfast and ardent.—*Anon.*

MISCELLANEOUS.

1. Progress—the stride of God!—*Victor Hugo.*
2. A merry heart doeth good like a medicine.—*Proverbs.*
3. Nothing great was ever achieved without enthusiasm.—*Emerson.*
4. The sober second thought is always essential and seldom wrong.—*Van Buren.*
5. Faces are a record in sculpture of a thousand anecdotes of whim and folly.
—*Emerson.*
6. Let us beware of losing our enthusiasm.—*Phillips Brooks.*
7. Bad men excuse their faults; good men correct them.—*Ben Johnson.*
8. The greatest of faults is to be conscious of none.—*Carlyle.*
9. It is the great woe of life to feel all feeling die.—*Bailey.*
10. Discretion of speech is more than eloquence.—*Bacon.*

11. To persevere is one's duty and to be silent is the best answer to calumny.
—*Washington*.
12. Childhood is the bough where slumbered
Birds and blossoms many numbered,—
Age that bough with snow encumbered.
—*Longfellow*.
13. If you would live with ease,
Do what you ought, not what you please.
—*Franklin*.
14. If you wish a thing done, go; if not, send.—*Franklin*.
15. It is hard to be wise on an empty stomach.—*George Eliot*.
16. No wise man ever wished to be younger.—*Swift*.
17. The groves were God's first temples.—*Bryant*.
18. Every man stamps his value upon himself.—*Schiller*.
19. Facts always yield the place of honor in conversation to thoughts about facts.
—*Holmes*.
20. He that is slow to anger is better than the mighty, and he that ruleth his spirit
than he that taketh a city.—*Proverbs*.
21. Plow deep while sluggards sleep,
And you shall have corn to sell and to keep.
—*Franklin*.
22. God has put something noble and good into every heart which his hand has
created.—*Mark Twain*.
23. Small minds are captivated by trifles.—*Ovid*.
24. Any nobleness begins at once to refine a man's features, any meanness to imbrute
them.—*Thoreau*.
25. Sweet flowers are slow and weeds make haste.—*Shakespeare*.
26. My tongue within my lips I rein.
For who talks much must talk in vain.
—*Gay*.
27. No soul is desolate so long as there is a human being for whom it can feel trust
and reverence.—*George Eliot*.
28. Genius can never despise labor.—*Abel Stevens*.
29. The great man is he who does not lose his child's heart.—*Mencius*.
30. The setting of a great hope is like the setting of the sun.—*Longfellow*.
31. Our grand work is not to see what lies dimly at a distance, but to do what lies
clearly at hand.—*Carlyle*.
32. We do not count a man's years until he has nothing else to count.—*Emerson*.
33. Too low they build who build beneath the stars.—*Young*.
34. Never leave till tomorrow what you can do today.—*Franklin*.
35. Mind unemployed is mind unenjoyed.—*Bovee*.
36. Heaven never helps the man who will not act.—*Sophocles*.
37. Things don't turn up in the world unless somebody turns them up.—*Garfield*.
38. Recollect that trifles make perfection and perfection is no trifle.—*Michael Angelo*.
39. There is always room for a man of force and he makes room for many.—*Emerson*.
40. There is no substitute for thorough-going, ardent, sincere earnestness.—*Dickens*.
41. It is well to think well; it is divine to act well.—*Horace Mann*.
42. Seize the present, trust tomorrow
E'en as little as you may.
—*Horace*.
43. Lost time is never found again; and what we call time enough always proves
little enough.—*Franklin*.
44. A word fitly spoken is as apples of gold in pictures of silver.—*Proverbs*.
45. Never does a man portray his own character more vividly than in his manner
of portraying another.—*Richter*.
46. I would rather be right than president.—*Henry Clay*.
47. Be noble: and the nobleness that lies
In other men sleeping, but never dead,
Will rise in majesty to meet thine own.
—*Lowell*.
48. No one was ever lost on a straight road.—*Dr. Cuyler*.
49. To live in hearts we leave behind is not to die.—*Campbell*.

50. Discretion of speech is more than eloquence.—*Bacon*.
51. Whatever creed be taught or land be trod,
Man's conscience is the oracle of God.
—*Byron*.
52. Thought takes man out of servitude into freedom.—*Emerson*.
53. Sin has many tools, but a lie is the handle that fits them all.—*Holmes*.
54. The Emancipation Proclamation is the true sister of the Declaration of Independence.—*Carl Schurz*.
55. It is the function of civil government to make it easy to do right and difficult to do wrong.—*Gladstone*.
56. Only he who lives a life of his own, can help the lives of other men.—*Phillips Brooks*.
57. I set a greater value on the character of a doer of good than any other kind of reputation.—*Franklin*.
58. My dear boy, observe the postage-stamp; its usefulness depends upon its ability to stick to one thing until it gets there.—*Joseph Chamberlin*.
59. The chief want in life is somebody who shall make us do the best we can.
—*Emerson*.
60. Merit and good breeding will make their way everywhere.—*Lord Chesterfield*.
61. Faith is a higher faculty than reason.—*Bailey*.
62. Faith is the substance of things hoped for, the evidence of things not seen.
—*Hebrews*.
63. My words fly up, my thoughts remain below;
Words without thoughts never to heaven go.
—*Shakespeare*.
64. And thou, O Lord! by whom are seen
Thy creatures as they be,
Forgive me if too close I lean
My human heart on thee.
—*Whittier*.
65. Whichever way the wind doth blow,
Some heart is glad to have it so;
And blow it east or blow it west,
The wind that blows, that wind is best.
—*Caroline H. Mason*.
66. I believe that in the long run the right side will be the strong side.—*Garfield*.
67. After all the best thanksgiving is thanks living.—*Anon*.
68. Cigarets in boyhood are about as useful in building up a strong body as dynamite would be in building a house.—*W. F. Crafts*.
69. Genius is to wit as the whole is to its parts.—*De la Bruyere*.
70. Fortune has rarely condescended to be the companion of genius.—*Disraeli*.
71. It isn't the thing you do, dear,
It's the thing you've left undone,
That gives you a bit of heartache,
At the setting of the sun.
—*Margaret Sangster*.
72. He prayeth best who loveth best
All things both great and small;
For the dear God who loveth us,
He made and loveth all.
—*Coleridge*.
73. I hold it truth with him who sings
To one clear harp in divers tones,
That men may rise on stepping stones
Of their dead selves to higher things.
—*Tennyson*.
74. We live in deeds, not years; in thoughts, not breaths; in feelings, not in figures on a dial. We should not count time by heart throbs. He most lives who thinks most, feels the noblest, acts the best.—*Bailey*.

75. Spake full well in language quaint and olden
 One who dwelt beside the castled Rhine,
 When he called the flowers so blue and golden,
 Stars that in earth's firmament do shine.
—Bryant.
76. Blessings on thee, little man,
 Barefoot boy with cheek of tan!
 With thy turned-up pantaloons,
 And thy merry whistled tunes;
 With thy red lip redder still;
 Kissed by strawberries on the hill;
 With the sunshine on thy face,
 Through thy torn brim's jaunty grace;
 From my heart I give thee joy—
 I was once a barefoot boy.
—Whittier.

FOR THE LITTLE ONES.

In the main only classic selections should be used as "memory gems," though for the little ones the teacher may often use simpler quotations that fall within the comprehension of the childish mind, such as the following:—

1. Politeness is to *do* and *say*
 The kindest thing in the kindest way.
2. Roses of the cheek will fade;
 Beauty pass away;
 Loving words and gentle deeds
 Never can decay.
3. To do to others as I would that
 They should do to me,
 Will make me honest, kind, and true,
 As children ought to be.
4. If a task is once begun,
 Never leave it till it's done;
 Be the labor great or small,
 Do it well or not at all.
5. Hearts, like doors, will ope' with ease,
 To very, very little keys,
 And don't forget that they are these,—
 "I thank you, sir," and "If you please."
6. If you're told to do a thing
 And mean to do it really,
 Never let it be by halves;
 Do it fully, freely.
7. If you would have your learning stay,
 Be patient,—don't learn too fast;
 The man who travels a mile each day
 Will get 'round the world at last.
8. Do your best, your very best,
 And do it every day—
 Little girls and little boys,
 That is the wisest way.
9. "I can't" is a sluggard too lazy to work,
 From duty he shrinks, every task he will shirk;
 No bread on his board and no meal in his bag,
 His house is a ruin, his coat is a rag.

10. Beauty lies within ourselves,
After all, they say;
And be sure the happy heart
Makes the happy day.
11. Wynken and Blynken are two little eyes,
And Nod is a little head,
And the wooden shoe that sailed the skies
Is a wee one's trundle-bed.
12. Where two ways meet, the children stand,
A fair, broad road on either hand,
One leads to right and one to wrong,
So runs the song.
13. These are little temperance feet,
So you'll never find them
Walking to a beer saloon,
Dragging me behind them.
14. "I'll try," does great things every day.
"I can't" gets nothing done:
Be sure, then, that you say "I'll try,"
And let "I can't" alone.
15. Kind hearts are the gardens,
Kind thoughts are the roots,
Kind words are the blossoms,
Kind deeds are the fruits.

LIBRARY LIST.

Since the preparation of our former library list, not only have many new books been published, but many districts have gained the nucleus of a good library and are now ready to add other and even better volumes to the list.

We are glad to note that a sentiment in favor of district libraries is abroad in the land; and with the increasing prosperity evidenced on every hand, by the close of another year we hope to see a good working school library in the majority of our rural schools. We therefore now publish a much more extended list, containing all the best of those formerly given and many others equally good or better. A large number are very finely illustrated.

Believing that experience has shown that cheap bindings are poor economy, most of the prices quoted are for cloth bindings, and many of the books can be procured in boards from ten to twenty cents less. As the prices all include postage, the books may be bought at the same rate either at local book stores or through publishers direct. In ordering *this list should always be mentioned*. These prices are for single copies, and if several books are included in one order, from ten to twenty-five per cent additional discount can be given. It will be noted that none of Shakespeare's plays appear on the regular list, but some fine editions specially prepared for students are published at thirty cents (cloth) for separate plays (boards twenty cents) by each of the following companies: Educational Publishing Co., American Book Co., Harper & Bros., Ginn & Co. Houghton, Mifflin & Co. furnish them in cloth binding only, at 25 cents.

The dagger used in list indicates that numbers so marked are included in the State Traveling Libraries. The asterisk shows that the prices of these numbers is given for the *Riverside Literature Series*; they can also be procured for ten cents additional in the uniform binding (red cloth and full leather back) of the *Riverside School Library*, which includes fifty literary classics selected by various leading educators from a list of 500 submitted to them for examination. The whole fifty can be procured for \$24.82, making a fine addition to any library.

SUPPLEMENTARY READING.

Under this head in the various grades we give some hints regarding the *kind* of reading to be selected. Teachers can so easily supply themselves with catalogs giving information that we will content ourselves with mention of a few series which seem to us specially adapted to this purpose.

"Stepping Stones to Literature," published by Silver, Burdett & Co., is a series of beautiful readers, the material of which is selected and arranged by two such skilful people as Sarah L. Arnold, supervisor of the Boston schools, and Charles B. Gilbert, superintendent of schools, Newark, N. J. Its scope covers eight grades, the first four of the series selling for 32 cents, 40 cents, 50 cents, and 60 cents respectively. The other four volumes are yet in press.

"The World and Its People," also by Silver, Burdett & Co., is a series of geographical readers edited by Larkin Dunton, head master of Boston Normal School, which is being extensively introduced for supplementary reading. It comprises eight books with titles and prices as follows:—

- First book—First Lessons, 36 cents.
- Second book—Glimpses of the World, 36 cents.
- Third book—Our Own Country, 50 cents.
- Fourth book—Our American Neighbors, 60 cents.
- Fifth book—Modern Europe, 60 cents.
- Sixth book—Life in Asia, 60 cents.
- Seventh book—Views in Africa, 60 cents.
- Eighth book—Islands of the Sea, 60 cents.

"The Picturesque Geographical Readers," by Charles F. King, author of *"Methods and Aids in Geography,"* is another finely graded series published by Lee & Shepard, and includes five books:—

- First book—Home and School, 50 cents.
- Second book—This Continent of Ours, 72 cents.
- Third book—The Land We Live In (Part I.), 56 cents.
- Fourth book—The Land We Live in (Part II.), 56 cents.
- Fifth book—Rocky Mountains and Pacific Slope, 56 cents.

The *"Five-cent Classics,"* issued by the same company and sent postpaid at 60 cents a dozen, include much good literature.

The *"Standard Literature Series,"* by the University Publishing Co., is well arranged for supplementary use. It includes many standard historical and geographical novels in neat paper or cloth binding, costing by yearly subscription \$1.40 for twelve numbers issued monthly. It is the intention to have these novels cover the entire period of English and American history, with possibly French history from the time of Louis XIV. The needs of elementary classes and those making a study of literature are both provided for in this series.

The *"Riverside Literature Series,"* of Houghton, Mifflin & Co., single numbers of which can be procured in paper covers at 15 cents, is an almost inexhaustible source of supply for supplementary reading, and being the pioneer series for this purpose, it has long been well and favorably known.

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* (Those who desire to avoid trouble of corresponding with the various companies can address D. A. Wright, Lansing, Mich., who will furnish any of them at the prices quoted.)

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312	" ".....	" ".....	Deerslayer (Alpine edition)†.....	8-10	25
313	H. T. C. & Co.....	" ".....	" " (Alta edition).....	8-10	37
314	" ".....	Bruce.....	Romance of The Revolution (Alta edition).....	8-10	37
315	" ".....	Brayman.....	Thrilling Adventures (Alta edition).....	8-10	37
316	" ".....	Scott.....	Ivanhoe (Alto edition).....	8-10	37
317	H. M. & Co.....	" ".....	" " (R. S. L.).....	8-10	70
318	" ".....	Stowe.....	Uncle Tom's Cabin*.....	6-8	60
319	H. T. C. & Co.....	" ".....	" " (Alta edition).....	6-8	37
320	H. M. & Co.....	Baylor.....	Juan and Juanita†.....	6-9	1 20
321	" ".....	Larcom.....	New England Girlhood (outlined for memory).....	5-8	60
322	" ".....	Perry.....	Three Little Daughters of The Revolution†.....	7-10	80
323	S. Sons.....	Eggleston.....	Hoosier School Boy†.....	7-11	1 00
324	H. & Bros.....	Wallace.....	Ben Hur†.....	9-12	1 20
325	A. & Co.....	Parker.....	The Seats of The Mighty†.....	10-12	1 25
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327	S., B. & Co.....	Heilprin.....	The Earth and Its Story†.....	10-12	1 00
328	A. & Co.....	Hutchinson.....	Autobiography of the Earth†.....	9-10	1 25
329	L. & S.....	Sparhawk.....	Miss West's Class in Geography.....	2-4	30
330	" ".....	Leighton.....	Life at Puget Sound.....	6-8	1 00
331	H. T. C. & Co.....	Ballantyne.....	Shifting Winds (Alta edition)†.....	5-8	27
332	" ".....	" ".....	Northern Lights By Swedish and Finnish Authors.....	8-12	27
333	E. P. Co.....	Baker.....	Here and There—Geography for Young Folks.....	2-3	40
334	" ".....	Pratt.....	People and Places (5 vols.).....	4-5	ea. 60
			(Stories of Australia, India, China, Northern Europe, England.)		
335	Cr. & Co.....	Dickens.....	Pictures of Italy (Astor edition).....	8-12	50
336	" ".....	" ".....	" " (Standard edition).....	8-12	80
337	H., M. & Co.....	Andersen.....	Pictures of Travel.....	8-12	80
338	" ".....	Dana.....	Two Years Before the Mast*†.....	7-8	60
339	" ".....	Bacon.....	A Japanese Interior (R. S. L.).....	8-10	60
340	" ".....	Higginson.....	Java, The Pearl of the East.....	6-7	60
341	S. Sons.....	Drummond.....	Tropical Africa†.....	8-12	1 00
342	A. & Co.....	Souvestre.....	An Attic Philosopher in Paris.....	10-12	50
342	P. Sons.....	Taylor.....	Boys of Other Countries.....	5-7	96

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343	P. Sons.....	Taylor.....	Views Afoot { (Illustrated edition)† { (library edition).....	7-11 7-11	\$1 82 1 14
344	E. & L.....	Butterworth..	Zigzag Journeys (finely illustrated)†..... Around the World, In India, In the Antipodes, In the Levant, In Classic Lands, In the Occident, In Northern Lands, In Australia, In the British Isles, In Acadia, In Europe, On the Mississippi, In the Mediterranean, In the Sunny South, In the White City.	5-7	ea. 1 20
345	M. Co.....	Carroll	Around The World.....	1-2	30
346	C. P. Co.....	Schwatka.....	Children of the Cold.....	3-5	70
347	L. Co.....	{ Humphrey } & Chapin }	Little Folks of Other Lands.....	3-5	44
348	G. & Co.....	Andrews.....	Seven Little Sisters.....	4-6	50
349	" "	" "	Each and All.....	4-6	50
350	" "	Frye's	Brooks and Brook Basins	4-6	58
351	" "	Ballou.....	Footprints of Travel.....	7-10	70
352	Macm. Co....	Yonge.....	Little Lucy's Wonderful Globe.....	2-4	50
SCIENCE AND NATURE STUDY.					
353	E. P. Co.....	Giberne	Ocean of Air.....	6-10	1 50
354	" "	Flagg.....	A Year with the Birds.....	6-8	1 00
355	" "	" "	A Year Among the Trees.....	6-8	1 00
356	" "	Chase.....	Stories from Animal Land.....	5-6	75
357	" "	" "	Nature Stories for Youngest Readers.....	1-2	35
358	" "	Pratt.....	Fairyland of Flowers.....	5-7	1 00
359	" "	" "	Little Flower Folks (2 vols.).....	4-5	ea. 40
360	" "	" "	Storyland of Stars.....	5-6	50
361	" "	Kelly.....	Introduction to Leaves from Nature.....	2-3	40
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364	" "	" "	" " " " " " Vol. III.	5-6	60
365	" "	" "	Stories from Garden and Field.....	2-3	40
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370	" "	Kelly.....	Short Stories of Our Shy Neighbors.....	4-5	50
371	" "	Dana.....	Plants and Their Children.....	5-7	65
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374	" "	" "	Familiar Animals and Their Wild Kindred.....	3-4	50
375	" "	Johannot.....	Cats and Dogs.....	1-2	17
376	" "	" "	Friends in Feathers and Fur.....	2-4	30
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378	" "	" "	Some Curious Flyers, Creepers, and Swimmers.....	4-6	40
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380	" "	" "	Glimpses of the Animate World.....	8-12	1 00
381	I. B. & Co ..	Lockwood....	Animal Memoirs (Part I—Manimals)†.....	4-6	60
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383	S. B. & Co ..	Brown.....	The Plant Baby and its Friends.....	2-3	48
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402	" "	Strong.....	All the Year Round (3 Vols.).....	2-4	ea. 30
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404	" "	Bergen.....	Glimpses at the Plant World.....	5-7	50
405	Cr. & Co.....	Cooper.....	Short Stories in Botany.....	4-7	80

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406	P. Sons.....	Ballard.....	Moths and Butterflies.....	2-4	\$1 50
407	McC. & Co...	Morley.....	A Song of Life.....	5-7	1 00
408	" "	Keyser's.....	In Birdland.....	8-10	1 00
409	" "	Parker.....	Familiar Talks on Astronomy.....	8-12	80
410	H. & Bros....	Herrick.....	The Earth in Past Ages (Geology for Young People).....	8-10	60
411	A. & Co.....	Archibald....	Story of the Earth's Atmosphere.....	10-12	30
412	" "	Allen.....	The Story of Plants.....	10-12	30
413	" "	Martin.....	The Story of a Piece of Coal.....	10-12	30
414	" "	Buckley.....	Life and Her Children.....	7-8	1 25
415	" "	Beard.....	Curious Homes and Their Tenants.....	6-8	59
416	" "	Baskett.....	Story of Birds.....	8-12	59
417	" "	Bayliss.....	In Brook and Bayou.....	5-7	54
418	J. & Co.....	McCook.....	Old Farm Fairies.....	6-8	1 12
419	" "	"	Tenants of an Old Farm.....	6-8	1 12
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420	P. Sons.....	Phyfe.....	7,000 Words Mispronounced.....		77
421	H. M. & Co..	Chester.....	Girls and Women (ethical).....		60
422	" " " ..	Black.....	Photography—Indoors and Out.....		60
423	" " " ..	"	American Authors and their Birthdays (paper).....		15
424	W. A. Co.....	Allen.....	Marvels of our Bodily Dwelling.....		1 10
425	McC. & Co...	Kirkland....	Speech and Manners for Home and School.....		60
426	A. & Co.....	Austin.....	Uncle Sam's Secrets.....		65
427	Penn Co.....	Morton.....	Letter Writing.....		40
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429	" "	Bechtel.....	Practical Synonyms.....		40
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431	" "	"	" —South America.....		
432	D. A. Co.....	James.....	Practical Agriculture.....		
433	McG. Co.....	Griswold....	Personal Sketches of Recent Authors.....		
434	S. Sons.....	Gordy.....	American Leaders and Heroes.....		

FOR TEACHER'S LIBRARY.

The following list contains some helpful books along various lines of work:

No.	Pub. Co.	Author.	Title.	Price.
PSYCHOLOGY AND PEDAGOGY.				
1	C. W. B.	Van Liew	Outlines of Pedagogics	\$1 00
2	"	DeGulimps	Life of Pestalozzi	1 20
3	"	Laurie	Life and Works of Comenius	80
4	"	Fröbel	Autobiography	1 20
5	"	Groszmann	Child Study	40
6	"	Hughes	Mistakes in Teaching	40
7	"	Young	The Art of Putting Questions	25
8	A. & Co	Boone	Education in United States	1 25
9	"	Fröbel	" of Man	1 25
10	"	Preyer	Infant Mind	84
11	E. P. Co	McLellan	Applied Psychology	1 25
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13	"	Halleck	Psychology and Psychic Culture	1 00
14	"	White	School Management	1 00
15	"	King	" Interests and Duties	1 00
16	"	Hallmann	Primary Methods	60
17	S. & Co.	Scott	Organic Education (primary grades)	1 25
18	S., B. & Co.	Arnold	Waymarks for Teachers	1 25
19	"	Putman	A Manual of Pedagogics	1 50
20	Macm. Co.	Rowe	Physical Nature of the Child	87
21	E. L. K. Co.	Allen	Temperament in Education	35
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22	"	Mooney	Foundation Studies in Literature	1 25
23	"	Tappan	Topical Notes on American Authors	1 00
24	"	Martz	New Method for Study of English Literature	75
25	"	"	Key to New Method for Study of English Literature	45
26	"	Anderson	Sixty Composition Topics	36
27	"	Pattee	History of American Literature	1 25
28	A. B. Co.	Brander	Matthews' Introduction to American Literature	1 00
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29	A. & Co.	Parker	How to Study Geography	1 25
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31	"	Carver	How to Teach Geography	15
32	Macm. Co.	Geikie	The Teaching of Geography	60
33	A. B. Co.	Long	Home Geography	25
34	H. & Co.	Redway	Manual of Geography	45
35	"	Trotter	Lessons from the New Geography	67
36	P. S. P. Co.	McMurry	Special Method in Geography	40
37	G. & Co.	Frye	Child and Nature	80
38	L. & S.	King	Methods and Aids in Geography	1 20
39	L., S. & S.	Tilden	Commercial Geography	1 25
40	S., B. & Co.	MacCoun	Historical Geography of the United States	90
41	M. Bros.	MacLeod	Talks about Common Things	25
HISTORY.				
42	A. & Co.	Eggleston	History of United States (illustrated)	2 50
43	"	"	Beginners of a Nation	1 25
44	"	Hinsdale	How to Teach and Study History	1 25
45	L. G. & Co.	Thwaite	The Colonies	1 00
46	"	Hart	Formation of the Union	1 00
47	"	Wilson	Division and Reunion (The three preceding cover the entire period of U. S. history.)	1 00
48	L. & S.	Gordy & Twitchell	Pathfinder in American History	1 20
49	A. B. Co.	White	Outline Studies in U. S. History	30
50	"	Fisher	General History	1 50
51	H. & Bros.	Smith	The Student's Series (average price) (Rome, Greece, Continental Europe, England, etc.)	1 25
52	H. M. & Co.	Morse	The Statesman Series (Select names from epochs—Hamilton, Morse, Clay, Calhoun, Webster, Adams, etc.)	ea. 1 00
CIVICS.				
53	Macm. Co.	Bryce	The American Commonwealth	1 60
54	"	Davenport	Elementary Economics	70
CALISTHENICS.				
55	S., B. & Co.	Enebuske	Progressive Gymnastics Days' Orders (Ling System of Swedish Gymnastics)	75
56	E. P. Co.	Nissen	Swedish System of Gymnastics	75

FOR TEACHER'S LIBRARY.—Concluded.

H. R. Pattengill publishes a little series of twenty-five cent books that are very helpful to teachers:—

No.	Publishing Co.	Author.	Title.
57	Cox.....	Primer of Michigan History.
58	".....	Civil Government of Michigan.
59	Hewitt.....	Civil Government of the United States.
60	Hammond.....	Michigan School Law.
61	Ford.....	Manual of Punctuation.
62	Putnam.....	Primer of Pedagogy.
63	Pattengill.....	"Old Glory" Speaker (compiled).
64	".....	Memory Gems (compiled revised edition).
65	".....	School Knapsack.

For above list address D. A. Wright, Lansing, Mich.
Or Lyon, Kymer & Palmer Co., Grand Rapids, Mich.

SUGGESTIVE LIST FOR MUSIC AND DRAWING.

MUSIC.

From the following list an ungraded school should be able to select material for both singing and note reading:—

Publishing Co.	Author.	Title.	Price.
MUSIC.			
B. Co.....	Smith	Songs for Little Children	\$1 00
"	Hailmann	Songs, Games, and Rhymes.....	1 50
S., B. & Co.....	"	Child Life in Song.....	60
"	Glover & Harris.	Sunshine Melodies.....	36
"	Tufts.....	Common School Course (ungraded)....	48
"	"	Common School Course (complete)....	60
H. M. & Co.....	Lawrence	Riverside Song Book.....	40
H. & Co.....	Whiting.....	Young People's Song Book.....	28
G. & Co.....	Tilden.....	Common School Song Reader.....	36
S., B. & Co.....	Johnson.....	Songs of the Nation.....	60
A. B. Co.....	Betz.....	Gems of School Songs.....	70

DRAWING.

The list given below offers quite a wide choice both for teacher's aid and pupils' use. We suggest correspondence with publishers for circulars regarding prices and phase of work covered by each, so that teachers may make an intelligent selection for the especial need of their schools.

Publishing Co.	Author.	Title.
P. E. Co.....	Hicks & Locke.....	Elementary Course in Art Education.
"	Clarke, Hicks & Locke....	Complete Course in Form Study and Drawing.
"	"	Shorter
"	White	New Course in Art Instruction.
S., B. & Co.....	Shaylor.....	Normal Course in Drawing.
G. & Co.....	Cross	National Drawing Course.
H. & Co.....	Thompson	Manual Training Course (I. and II.).
"	"	Shorter Course.
"	"	Esthetic Course.
"	"	Mechanical Course.
E. P. Co.....	Augsburg	Elementary Drawing Simplified.
FORM STUDY.		
P. E. Co.....	Prang	Form Study Manuals (I. and II.).
E. P. Co.....	Augsburg	Drawing Simplified.
"	Gilmore	Lessons in Industrial Drawing.
"	Schwartz.....	Sloyd, or Educational Manual Training.
"	Cutler.....	Primary Manual Training. (Method in form study, color work, etc.)
COLOR.		
P. E. Co.....	Prang	Suggestions for Instruction in Color.
G. & Co.....	Cross	Color Study.
B. Co.....	"	Color in the School Room.
"	"	Elementary Color.
"	Maycock.....	A Class Book of Color.
MISCELLANEOUS.		
G. & Co.....	Cross	Free Hand Drawing.
"	"	Mechanical Drawing.
"	"	Light and Shade.
"	"	Historic Ornament and Design.
P. E. Co.....	Rouillion.....	A Course in Mechanical Drawing.

READING TABLE.

That school is fortunate which is able to supplement its other equipments with a well stocked reading table, and for such use we would especially commend the following:—

"The Week's Current" (weekly—40 Nos.)	\$1 00
Pub.—E. O. Vaile, Oak Park, Ill.	
"Timely Topics" (weekly—40 Nos.)	1 00
Pub.—H. R. Pattengill, Lansing, Mich.	
"The Youth's Companion" (weekly)	1 75
Pub.—Perry Mason & Co., Boston, Mass.	
"The Pathfinder" (weekly)	1 00
Pathfinder Publishing Co., Washington, D. C.	
Little Journey Series (monthly)	1 00
Pub.—G. P. Putnam's Sons, N. Y.	
(The series of 1898 comprises journeys to the homes of American statesmen.)	
"The Great Round World" (weekly)	1 50
Great Round World Pub. Co., New York City.	
Review of Reviews, 13 Astor Place, N. Y.	
Literary Digest.	

(This bright little periodical began its existence February, 1897, and the 30 numbers of Vol. I. bound in linen as Part I. and II. comprise a fine resume of recent history and make a good addition to any library. Price, 90 cents each.)

Reading Circle.

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